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ABSTRACT

Phase II of an Association of Vocational Education Administrators/Cornell Institute for Occupational Education study developed instruments and procedures for measuring selected social cutcomes of occupational education and pilot tested them in a limited sample of sites statewide. Pencil-and-paper survey instruments were developed, pre-piloted, piloted, and analyzed. A second generation pool of survey questions was then generated for further pilot testing early in Phase III. The Statistical Package for the Social Sciences was used throughout the data analysis. Initial data analysis included determining frequency distributions and such summary statistics as means and standard deviations. Ten demographic variables were used to crosstabulate all item responses, while three additional variables were used to cross-tabulate the responses of occupational students only. Student interviews were also conducted with students who were surveyed and some who were not. Purposes of the interview were (1) monitor of survey relevance, (2) parallel measurement, and (3) interpretation of survey results (development of qualitative information). The instruments developed were found to be sensitive to differences in students' educational programs and backgrounds. (Appendixes, amounting to one-third of the report, include the survey instrument, interview guides, models for scoring some questions, and factor scores for statistically significant demographic variables.) (YLB)

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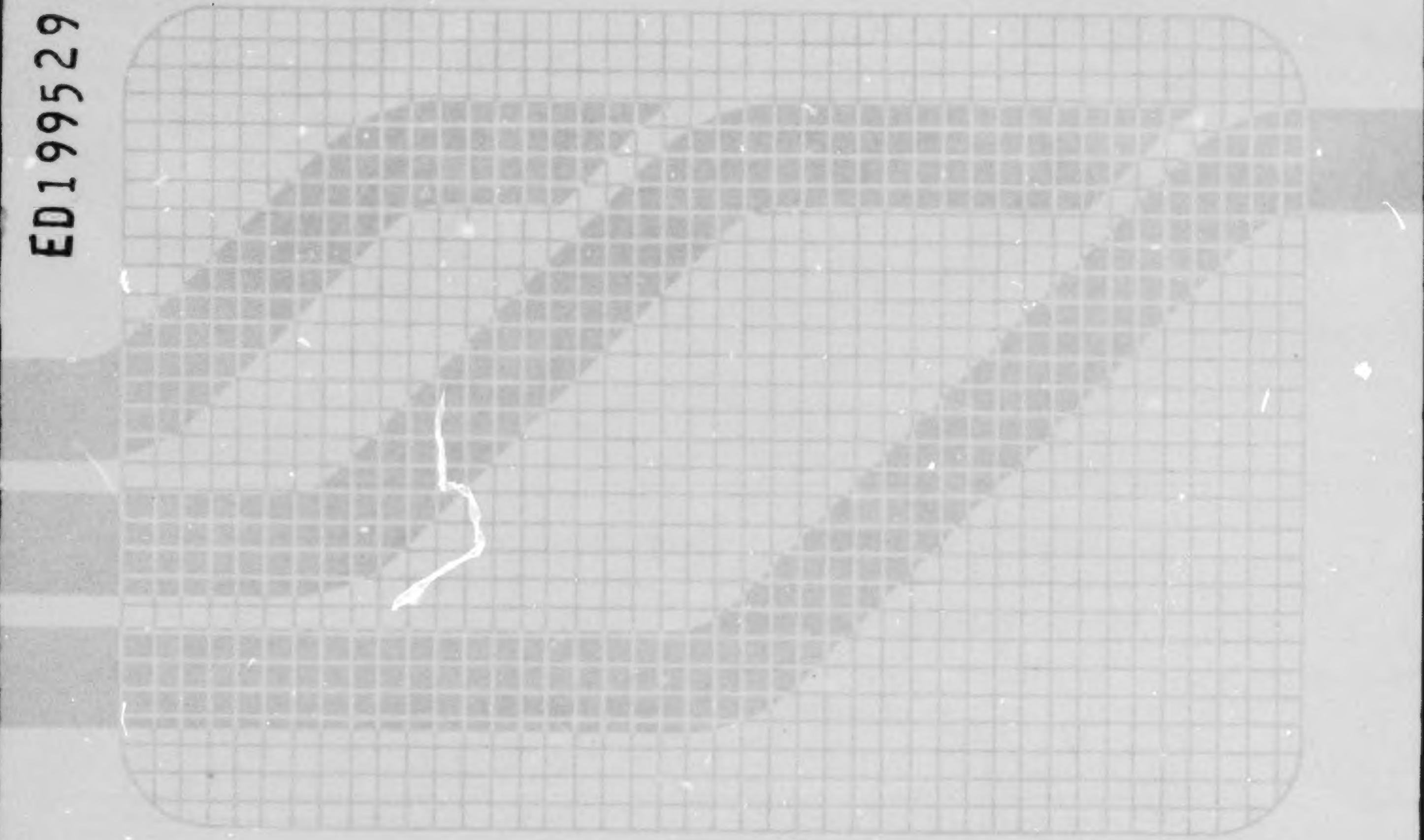

Outcomes of Occupational Education

CE 028 380

Phase II Report

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* * * * *

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The work summarized in this document is a joint effort of the Cornell Institute for Occupational Education (CIOE), the Association of Vocational Education Administrators (AVEA), the New York State Bureau of Occupational Education Research, and selected schools in New York State. I am pleased to acknowledge here the persons whose thinking and labor are reflected in this report.

The project was originally conceptualized by John McCormick, Dale Post, Alan Robertson and myself in early 1978. The work reported here has been directed since January, 1980, by Dr. Clinton B. Walker. Working with him on research design, instrument development, data analysis, and report writing were Dr. John J. Bowers and Dr. Dennis R. Ridley and Research Assistants Jeff Claus and Frances Schorr. Dr. Robert Frank directed the latter part of Phase I of the project and helped conceptualize this phase. Dr. Cheng Liu, Associate Professor of Industrial Arts, State University of New York at Oswego, and Visiting Scholar at the Institute for the academic year 1979-80, took part in the design, development, and data collection. Dr. Steve Farrar, Assistant Dean in the School of Allied Health Professions, Ithaca College, and Research Assistant in the Institute from 1978 to 1980, worked on design and development and made arrangements for the field test. Mr. Phillip Harrington, Research Assistant, assisted with the analyses and wrote a large set of new survey questions.

Project typing was ably carried out by Mrs. Madeline Dean, Judy Nichols, Lois Snyder, Cindy Moore, Elaine LaRocque, Sharon Bobnick and Susan Alexander. Robert Frank coordinated final production of this report. Lynn Rycroft provided business management to the project throughout. The fine work of these CIOE staff members is gratefully recognized.

CIOE project staff had the benefit of advice and assistance from the AVEA Project Steering Committee on an ongoing basis. This committee consisted of the following persons:

John McCormick
President of AVEA and
Assistant Superintendent
First Supervisory District of Monroe County

Hans Lang
Director, High Schools,
Occupational and Continuing Education
Syracuse City School District

Thomas Mahoney
Director of Vocational and
Continuing Education
Tompkins-Seneca-Tioga BOCES

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Director of Occupational Education
Broome-Delaware-Tioga BOCES

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Principal of Occupational Education
Oswego County BOCES

Rudolph Schneider
President Elect of AVEA, and
Director of Occupational Education
Steuben-Allegany BOCES

Raymond Schoeberlein
Director of Occupational Education
Schuyler-Chemung-Tioga BOCES

Francis Streeter
Director of Occupational Education
Cortland-Madison BOCES

The guidance and operational support of the Steering Committee included choosing sites for pilot testing, encouraging site directors to take part, evaluating draft survey items, offering advice on protocol for contacts with the field, using their good offices to gain entry into schools for pre-piloting the prototype items, raising important questions about interpreting outcomes, and offering suggestions on design and sampling in the project's next phase. While they have actively supported the project, Committee members have maintained a steadfast dedication to objectivity in the study of the outcomes of occupational education. The AVEA Project Steering Committee has been a strong enabling and motivating force for the CIOE project staff during this undertaking.

Dr. Russell Green, Director of Research at the Monroe #1 BOCES, Fairport, NY, brought his expertise in both research and occupational education to bear on issues of design and instrument development.

Joseph Valletta, ISSOE Regional Coordinator for Region 9, helped in the development of the next generation of survey questions. With the very effective assistance of Mary Kay McGiff, he invited teachers and counselors to a workshop on item development and co-hosted it.

Dr. Jason Millman, Professor of Education at Cornell, gave advice on the analysis and interpretation of survey data and put his resources on affective measurement at our disposal.

During this research the CIOE staff has had the advantage of continuing consultation and advice from our colleagues in the New York State Education Department Bureau of Occupational Education Research. Dr. Alan G. Robertson, Chief, and Dr. Lorin Cooper, Associate in Research, have shared their approach to statewide research, made suggestions for design and sampling, and sent reprints of relevant new studies. Mr. Charles DeVoe, Associate in Educational Data Systems, has been very helpful on issues of forms clearance and consent.

Our last appreciation is to the students and staff of the participating field test sites and to the directors of occupational education who arranged for our access to the sites. The directors and the respective schools are:

Nassau County: Frank Wolff
    County Center for Occupational Education
    Northeast Nassau Area Occupational Center
    Massapequa High School

Orleans-Niagara Counties: Louis Salen
- Niagara Vocational Center
- Orleans Area Vocational Center
- North Tonawanda Senior High School
- Albion High School

Rochester City School District: Edgar Hollwedel
- Edison Industrial High School
- East Junior/Senior High School
- John Marshall Junior/Senior High School

Steuben-Allegany Counties: Rudolph Schneider
- Cooper's Career Center
- Campbell Junior-Senior High School

First Supervisory District of Suffolk County:
Carmine Antonelli
- Harry B. Ward Vocational Center
- Eastport High School
- Riverhead Senior High School
- Westhampton Beach Senior High School

Third Supervisory District of Suffolk County: Donald Hoak
- Lewis A. Wilson Technological Center (Central Center)
- Commack South High School
- Half Hollow Hills High School-East
- Walt Whitman High School

Warren-Washington Counties: James Fogarty
- BOCES Educational Center
- Hudson Falls Senior High School

Second Supervisory District of Westchester County:
Dr. Donna Santa
- Mid-Westchester BOCES Center
- Harrison High School
- Irvington Junior/Senior High School

In addition, Joseph Fuchs made arrangements for our staff to visit schools in the Albany-Schenectady area, but we were not able to take advantage of the opportunity.

With the help of these educators, schools, and students we have moved to the point where we may begin serious preparation for our statewide survey.

James A. Dunn

James A. Dunn
Director

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INTRODUCTION AND OBJECTIVES

Problem Statement

Occupational education has a variety of impacts on students and on society. Foremost among these are the economic returns to the individual and society through the development of occupational skills. This project derives from the hypothesis that vocational programs also have a positive impact on the social and other non-technical development of students.

Although these other outcomes are not technical skills, they are directly related to students' general utility to an employer and to the students' satisfactions from employment. In the area of general employee skills, it is likely that students become more able to profit from training and to apply their learning to new conditions. This development of ability to learn and to transfer learning has at least three components. First comes a growth in the basic cognitive skills of reading, mathematics, and communication. The second is a development of general social skills for survival as adults, including abilities to get along with others and to manage one's own affairs. The third consists of vocational social skills, including abilities to know such things as when and how to assume responsibility; when to seek help; and how to accept and benefit from supervision.

Besides such general employment skills, the exploratory research in Phase I of this project suggested that students undergo positive changes of attitude, such as increased confidence, increased ability to profit from evaluation, and improved attitudes toward school. A third type of non-traditional outcome was also identified by the research in Phase I. Dealing with career decision making, it is partly affective. Among the cognitive factors are an increased knowledge of how to get suitable jobs and an increased awareness of one's own skills and limitations. Affective factors include confidence in one's prospects for finding and securing appropriate work. The problem which this research deals with, then, is the non-technical outcomes of occupational education--their identification, measurement, and possible explanation.

Purpose

This report reviews the second phase of the AVEA/CIOE project on the non-technical outcomes of occupational education. A brief history of the study will put the purpose of this phase in context.

The project was launched by a resolution passed at the 1977 business meeting of the Association of Vocational Education Administrators (AVEA). This resolution stressed the need to determine the impact of secondary-level occupational programs on the personal and career development of students. Subsequently, the President of AVEA convened several meetings that resulted in a proposal made by CIOE in December 1977. The initial proposal led to additional meetings and a series of proposal revisions.

At the May, 1978 meeting of AVEA a resolution was passed endorsing the intention of the study, allocating seed money for the research, and directing the Executive Committee to try to secure VEA funds to support the project's continuation. CIOE staff wrote a proposal to the New York State Education Department (SED) for funding of Phase I and the research was funded starting in February, 1979. Owing to the origin of the project and to the ongoing participation of AVEA members on the project Steering Committee, this research is often referred to as the "AVEA Project."

The study was designed to have three phases. Phase I had the main objective of identifying probable social or other non-technical outcomes of occupational education. This was accomplished by interviewing or polling the major clients of occupational education, namely, students, teachers, and directors. Based on both these interviews and a review of literature, project staff developed hypotheses about the outcomes. The hypotheses resulting from this exploratory or pre-pilot research in Phase I are shown in Figure 1.

Figure 1

Hypothesized Outcomes of Occupational Education

1. Students in programs of occupational education have more positive attitudes toward school.[1] These attitudes refer to teachers, other students, the value of schooling, and enjoyability of school.

2. Students in programs of occupational education show increased confidence. Students' confidence includes both a belief in their own abilities and a feeling that they will know how to handle various situations.

3. Students in programs of occupation education display an increased ability to deal with situations which are stressful to them. Although the situations may still lead to personal irritations or worry, the students are better able to perform under stress.

4. Students in programs of occupational education possess a greater understanding of the social consequences of their actions. This understanding includes an awareness that an individual's behavior affects other people. It also includes acceptance of personal responsibility in two forms: a concern for the safety of self and others, and a concern for the care and custody of tools and materials.

5. Students in programs of occupational education are more capable of establishing trusting relationships with relevant persons. This ability has several parts, including skill in communicating (such as speaking clearly and gaining rapport) and style of communicating (such as speaking directly and holding opinions). In other words, the students are more capable of having relationships with significant adults and peers that are based on mutual respect, trust, and tolerance.

6. Students in programs of occupational education are more able to judge their work by both objective and subjective standards. The students display this ability in their willingness to have their work evaluated by others and impose personal standards of quality.

7. Students in programs of occupational education have greater skills for making decisions and solving problems, notably regarding employment and career. These skills include knowledge of potential sources for job leads, awareness of how to present oneself in a job interview, and ability to evaluate a job according to one's preferences and needs.

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[1] The comparisons implied in these hypotheses will be of beginning and graduating vocational students, of vocational and home school students, or both. To test the hypotheses, data will need to be gathered from all of those groups. The specific comparisons drawn may not be the same for all hypotheses.

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A review of previous research during Phase I indicated that a measurement plan should include the development of new instruments by writing new questions and selecting others from existing instruments. Also included should be supplementary data, both qualitative and quantitative, gathered from a variety of sources. Phase II, then, had the goal of developing instruments and procedures for measuring the outcomes in Figure 1 and pilot testing them in a limited sample of sites.

The third phase of this project will involve the operational collection of data statewide in a statistically controlled sample of students, using the instruments that have been developed and validated specifically for these outcomes.

Significance of Study and Need for It

Occupational education in New York State has grown markedly in the last two decades. Educators have long recognized vocational education's broader roles of career development and preparation for citizenship, but many still view the limited role of teaching the technical skills for entry level employment as the paramount objective of occupational education.

In a time of declining home school enrollments, tighter school budgets, and growing demands for accountability, it may be necessary for occupational educators to justify their programs' survival. The technical or skill outcomes of vocational training are certainly a strong argument for such programs, but evidence related to non-technical benefits may be needed as well.

In 1971 the Regents of the State of New York formally expanded the goals of occupational education in Position Paper #11, Occupational Education, A Statement of Policy and Proposed Action:

> While it (comprehensive occupational education) can be distinguished from other components of the educational process by its emphasis on developing job skills, occupational education functions as part of the total process in developing the many characteristics needed for personal and social, as well as occupational, success. It is therefore a program that has potential for all students.

Critics of occupational education point to youth unemployment statistics and to the surplus of vocational enrollments with respect to job opportunities as evidence of failure. Yet students appear to be enrolling in programs of occupational education in increasing numbers and, at some schools, are being denied entry to their desired program because of limits on space and local funding.

There is a need for a study to assess how well occupational education is meeting these expanded goals. These non-technical outcomes are valuable to students and to the rest of society irrespective of employment data, and they need to be assessed in a careful, credible manner.

The review of literature in Phase I, which is summarized below, generally supports the hypothesis of positive social outcomes. But the literature is not broadly persuasive for two reasons:

- the occupational programs studied are exemplary or otherwise unique; and

- many of the measures are too global or are gathered in non-vocational settings.

Thus, a study of a sizable sample of students from regular vocational programs across a range of settings is needed, and it must be aimed at outcomes that are directly related to occupational education.

Review of Literature

During Phase I of the AVEA project, a literature review was conducted to form a framework of previous research for the current project to build on. The results of this review were summarized in the Phase I Final Report, which the interested reader may wish to consult. This previous review served the purpose of confirming the need for the present research, identifying relevant literature, and pointing out anticipated problems of interpretation and method. In summary, the literature search led to several conclusions which confirmed the intent of the AVEA study; for example:

- technical or skill training alone is not sufficient for improving social adjustment;
- occupational education tends to produce growth in vocational maturity;
- occupational education produces more favorable attitudes toward school and more positive feelings about interactions within school.

However, there is a need for more objective, well-controlled studies, and for studies that can be generalized to students in New York State. Finally, the review indicated that care must go into measuring affective outcomes. Specifically, available instruments purporting to measure the traits of interest in the study--e.g., confidence, ability to handle stress, and social responsibility--all present difficulties in interpretation that must be addressed in developing adequate measures.

After Phase I of this project was completed, a number of other relevant articles and studies were received. During the same period, occupational education has continued to be the focus of public debate in a number of newspaper articles dealing with expenditures for vocational education and related matters. Thus, new evidence as well as issues in public debate have helped to clarify some of the issues which this project addresses.

This new material can be divided into two broad categories: affective outcomes of occupational education, and research methodology and measurement. This updated literature review contains very little direct evidence of affective outcomes of occupational programs. Other than one literature review conducted by the California State Department of Education, no additional evidence of this type was found.

The review sponsored by the California State Department of Education concentrated on beneficial outcomes of secondary vocational education. Some of the evidence is similar to that reported in the final report for Phase I of the present study. For example, Grasso and Shea (1979) reported that vocational education can help students to develop goals and career plans. They also reported that graduates of vocational education are more satisfied with their jobs than are students in a general curriculum. In the National Longitudinal Study (Creech, 1977), vocational graduates were more likely than traditional secondary graduates to say that they had been able to apply their programs to their postsecondary jobs. They were also more satisfied with their jobs than graduates of traditional curricula. In addition to studies that indicated higher employability of vocational education graduates, the California review also reported other evidence on the effectiveness of vocational education. Bottoms (1979) found, for example, that the following outcomes are expected of graduates of vocational education: employers' greater satisfaction with the students, students' satisfaction with occupational programs, an increase in school attendance, and a decline in disruptive behavior. Finally, a study by Noeth and Hanson (1975) found that a greater percentage of graduates of vocational education programs state that they would reenroll in these programs if they had it to do over. This result was especially true of those who were satisfied with their work, further suggesting the effectiveness of vocational education as measured in these ways.

Other recent articles suggest some limitations of the foregoing type of evidence. One source points out, for example, that the assessment of affective outcomes of occupational education is a value-laden exercise. Kievit (1978) argues that outcomes of research on vocational education reflect the value of the target audiences for the research. For example, vocational and technical education is seen as being strongly supported to the degree that it contributes significantly to social and individual goals. These goals include those of efficiency and practicality in conserving natural human resources. From this perspective vocational education should not be judged in terms of entry level job skills alone, but should be judged also in terms of increasing and improving students' understanding of the work environment and their motivation. This broader perspective is seen as a needed remedy to the short term and narrow perspectives of government programs. Also, parents tend to withhold support for programs that train students for low status occupations. A broader perspective would be that vocational education helps to develop attributes that can increase employability for a variety of jobs, not necessarily only those for which the student has been trained.

Several additional articles had only indirect implications for the outcomes of occupational education. Rather they dealt directly with the outcomes of work experience, which in turn sheds light on related outcomes of occupational education. John Holt (1980) theorized that the value of work for youth stems from the belief that humans are working animals. Everyone can profit from working in that work poses problems to solve, makes one useful (at least to the employer), provides for financial independence, and provides tasks to do for which the purpose is clear. Insofar as occupational programs resemble real jobs, students can respond by taking pride and pleasure in their experiences in these programs.

Several articles give evidence of the effects of work experiences on adolescents. Cole (1980) conducted a study of teenagers who were employed part time while attending school. She reported benefits in terms of practical knowledge, such as how to find a job and how society works. She also reported that children learn how to deal with the demands of work, budget their time, meet their obligations, and cope with unpleasant situations. They also develop confidence, pride in their accomplishments, and a sense of independence.

Greenberger and Steinberg (1979) did a large scale survey of working and non-working adolescents who were attending four high schools in Orange County, California. Respondents were 10th and 11th graders who were also involved in part-time work. In agreement with Cole that students who work gain practical knowledge (e.g., knowledge of business operations, money management and consumer arithmetic), Greenberger and Steinberg also pointed out certain drawbacks for these students. One drawback is a possible lowering of educational aspirations, especially for those who are involved in part-time work for many hours a week. However, the authors concluded that employment does foster positive attitudes toward work in general as well as persistence and pleasure in accomplishment. In another study, these investigators and their associates (Steinberg, Greenberger, Garduque, and McAuliffe, 1980) gave further evidence that working does have a substantial impact on adolescents. In summary, the most noteworthy benefit is that of increased practical knowledge, especially among those who are academically slower. Although working tends to have a negative influence on students' involvement in school, work does not seem to have a negative impact on the adolescent's relations with others, such as the quality of family and peer relationships (Greeberger, Steinberg, Vaux, and McAuliffe, in press).

Summarizing the above: to the degree that occupational education programs share in some of the characteristics of work situations, there seem to be positive outcomes similar to those under investigation in the present study. These include, in particular, practical knowledge of the workplace, how to go about obtaining a job, and how to perform more effectively within the work setting. It should be noted that these outcomes are not primarily technical skills but are rather attitudes and adjustments to work in general.

The second category of studies that surfaced during Phase II deals with problems of methodology. For example, one extensive review urged caution in using self-concept as a research variable (Shavelson, Hubner, and Stanton, 1976). Among the problems with measuring self-concept, Shavelson, et al. lists the following:

- Definitions [illegible] imprecise and vary across studies, making it hard to specify the population of potential persons and the population of potential questions to ask these persons.
- Data are not available on the equivalence of different self-concept measures; thus, it is difficult to generalize findings across studies.
- Data are not available to test alternative interpretations of self-concept studies (e.g., in terms of response biases). This leaves the meaning of measures of self-concept in doubt.

The same article analyzed some of the conceptual difficulties that make self-concept so difficult to measure. Self-concept can be conceptualized as hierarchically-organized. This implies that there are a variety of dimensions and types of self-concept, and that while the construct is a meaningful one, it has to be conceived in terms of these various levels and dimensions.

Benham, Giesen, Oakes (1980) also reviewed self-concept research and identified three aspects of self-concept. These include general self-concept, self-concept in relation to peers, and academic self-concept. Meaningful research findings are possible once self-concept has been differentiated in this manner. For example, these investigators found that students' plans to enter or not enter higher education are related to their self-concepts. However, such findings raise another methodological question: namely, do differences in self-concept precede or follow differences in future plans? Or, alternatively, are both differences in further plans and in self-concept a function of track placement? Given the likelihood of tracking systems in high schools, differences in affective outcomes between occupational and general education, whether self-concept or something else, may well be due to differences between students in the two general types of curricula. These selection artifacts (Cook and Campbell, 1979) may affect the outcome measures regardless of whether students or others make the tracking decisions.

The foregoing articles on self-concept have aided the project staff's thinking in the following ways. First, they have directed attention away from global self-concept to more specific traits that are easier to define, measure, and interpret. An example is the construct of confidence, which is described later in this report in terms of career readiness, interpersonal communication, and ability to affect the course of ones' own life. Secondly, these articles have sharpened the concern for what types of students enroll in vocational education and whether they differ systematically from those who do not enroll in vocational education. The problem for this project is to be able to separate real differences in program effects from preexisting differences in vocational and non-vocational students.

Finally, Borgatta (1979) provided guidance for developing an instrument to measure the outcomes of interest. Focusing on attitude measurement in vocational education, Borgatta reviewed the various types of scales that are available to the instrument developer: the Likert, Thurstone, and Guttman scales. Borgatta concluded that the Thurstone and Guttman techniques are too hard to apply and have too many practical limitations to be used widely for attitude measurement in vocational settings. The Likert technique, on the other hand, was presented as the simplest to apply and develop as well as the one with the most defensible assumptions. Borgatta supports the decision discussed later to use additive scores derived from Likert-scaled survey questions in developing this project's attitude measures.

Limitations of the Study

Two limitations of the study will be noted here so that the reader will know what to expect from the research. First, this is a study of secondary-level public school students in two-year, half-day programs of occupational education in New York State. Even though these students make up less than half of the secondary-level occupational student body in the state, they form a relatively well-defined, identifiable population. Students enrolled in other delivery systems often do not make up clearly defined groups (e.g., home school and comprehensive high school vocational programs). A study of half-day, two year programs is valuable, because that delivery mode is in wide use across the United States and covers nearly 100 percent of the territory of this state.

In recent media coverage of research on vocational education one gets the false impression that the studies speak for all of the field--all levels, all models, and all types of students. By noting the actual target population of this study in the report's abstract and here in the text, the authors hope to discourage such overgeneralization.

The second limitation is one which any non-experimental study of naturally occurring populations has. Without randomly assigning students to an occupational program and others to a variety of control conditions, it is impossible to prove that the outcomes of occupational education are also results of these programs. When a researcher finds that students in occupational programs develop in certain ways, the research data cannot automatically tell whether the changes are due to the vocational experience, to maturation, to other experiences which are common to all types of students, or to traits that are unique to occupational students but predate their entry into occupational programs.

In short, when students change in a program, that does not prove that they changed because of the program. Various tactics for designing the research may be used to discount each of these other explanations of the observed changes, but uncertainty about causes of the outcomes can never be eliminated altogether.

This difficulty in ascribing causal effectiveness to occupational programs does not mean that the research is flawed. Experimental methods are often impractical and unethical in real-world contexts, so one has to use less powerful methods or else not try to answer important questions. The survey and interview methods used in the present study have shown a combination of practicality and informativeness in education, sociology, social psychology and many other fields. The results of this study will not amount to conclusive proof of the effects of occupational education, but they will document some important outcomes and take steps toward testing some possible causes of the outcomes.

Objectives

The main objective for this phase of the AVEA project was to develop and pilot test instruments, procedures, and analyses for studying selected social outcomes of occupational education. As conceived in the proposal for this work, the more specific objectives were as follows:

- discuss the research design developed in Phase I with the staff of BOER, SED, and the AVEA Executive Council to complete the design and make logistical arrangements;
- revise the pilot test plan as necessary;
- select a stratified random sample of occupational education students by program in a single zone of AVEA;
- review the data collection activity with the AVEA Executive Council member representing that zone and with other selected AVEA leaders from that zone;

- initiate data collection activity (steps 3 through 5) for each of the remaining AVEA zones;
- process and analyze the data;
- prepare summary reports by occupational education programs, and, if appropriate, by region or other demographic characteristic; and
- disseminate results as appropriate at AVA and AERA.

With the advice of the AVEA Project Steering Committee and BOER, CIOE revised the pilot test plan in ways that modified some of the other objectives that deal with sampling, design, and procedure. Execution of the revised plan is described in the following chapter.

PROCEDURES

This research was concerned with developing and testing out instruments and procedures in preparation for the statewide assessment of the project's next phase. The work centered around the pencil-and-paper survey instruments which were the main source of outcome data. Instruments were developed, pre-piloted, piloted, and analyzed, and a second generation pool of survey questions was then developed for further pilot testing early in Phase III. This chapter reviews those procedures.

Development of the Spring Survey Instruments

Development of the survey instruments was focused throughout Phase II on the outcomes of occupational education that were hypothesized in Phase I (Figure 1). Staff first wrote a set of prototype survey questions for display at the Commissioner's Conference in February, 1980. These items were reviewed informally by two members of the AVEA Steering Committee before the conference, and after the conference suggestions were received from two other Steering Committee members and from the Director of Research at the Foreman Center in Fairport.

Staff continued through several cycles of item development in this sequence: write, review, reject or revise. While the hypotheses were the main source of ideas for writing items, several other sources were helpful, namely: summaries of interviews in Phase I, existing questionaires, and discussions among staff. The overriding criterion of relevance to the hypotheses screened out most items in the existing surveys. In reviewing items, whether developed in-house or by others, staff aimed for the goals described in Figure 2.

The issue of biases in responding was discussed during this initial stage of development, especially biases toward choosing the socially desirable response. Several considerations led away from measuring such biases directly. First, a separate set of items to measure these biases would reduce the number of items related to the hypotheses which could be answered in a fixed time. Second, the use of a separate scale as a covariate is not generally accepted when students are not randomly assigned to groups. Third, a separate scale used to correct scores or to eliminate some respondents makes the meaning of the results less clear. Fourth, the biasing or leading properties of items can be reduced in several ways, including these: following the guidelines in Figure 2; eliminating or revising items which students find to be leading; and establishing a frank, accepting atmosphere at the time of testing. Such an atmosphere can be created by giving students the free choice not to respond to the survey and by urging them to answer as they feel, not as the principal or their friends want them to. All of these non-statistical tactics for controlling response bias were used and are described elsewhere.

One set of questions was developed which did not measure the hypothesized outcomes, namely, items measuring the background of the respondents. These items asked about such details as the respondent's sex, parents' education and occupation, and number of hours worked per week. Background data like these have two important uses. First, they give a description of the sample of respondents, so that readers of this report will know who was surveyed. This description of the respondents may also allow their representativeness to be checked by comparison with official figures on the statewide population of secondary students. Second, these "demographics" will identify subgroups of the sample, so that the generality of outcomes across subgroups can be checked. In other words, these data will allow the measures of outcomes to be separated into groups to see which outcomes are for occupational education in general and which others are only for subsets of the population of occupational students.

Two other controls on the quality of the survey questions were applied before the pilot test: a pre-pilot on a small sample of students and a review by members of the AVEA Project Steering Committee. The pre-pilot was designed to de-bug items from the students' perspective. The existing pool of attitude questions, which had been edited down to 90 items, was divided into quarters. Each set of about 22 questions was made into a separate questionnaire, and a page of demographic questions was attached. Project staff then met with groups of five to ten students who were seniors to try out and discuss the items formally. Taking part in this pre-pilot were the Cortland-Madison BOCES, Schuyler-Chemung-Tioga BOCES, Homer Senior High School and Horseheads Senior High School.

Figure 2

Criteria for Internal Review of Survey Questions

1. Items should test the outcomes identified in Phase I.
2. Items should be simple and have one clear meaning.
    - a. Directions and wording should be as simple as possible so that answers will not be influenced by students' I.Q. or reading skill.
    - b. Items should have essentially the same meaning for students of occupational and general education.
    - c. Questions should be very clear as to what is being said of whom. In the following two items it is not clear whether the target of the question is characteristics of students or characteristics of schools:

      "Students here don't like to obey the rules."
      "It scares me to be sent to the principal's office."
    - d. Items should be unambiguous in any other respects and should test only one hypothesis.
3. Items should not require much interpretation by readers of the project report.
    - a. It should be quite clear which response indicates the positive attitude.
    - b. Preferably items will measure ends-in-themselves, rather than being subtle or indirect indicators of outcomes.
4. Wording of items should not bias the responses.
    - a. Even though there should be no doubt as to which is the positive answer, students should not feel pressed or led to choose any of the possible answers.
    - b. Extreme language, which might make a possible answer unattractive, should be avoided. Terms such as all, every, hate, and the like are too biasing.
5. To encourage a cooperative, candid spirit in the respondents, try to avoid questions which give them a set of unacceptable choices. If forced to choose the lesser of evils too often, students may feel that careful, honest responses are not important.

Students from the senior highs were in general academic programs. Staff met with two groups of students at each school, having them answer the survey questions and then critique them. Students were specifically asked, after answering a set of 22 items, to identify items that were not clear, readable, interesting, or relevant to their own concerns. Also, students were asked to note items which seemed to prompt or bias the response and ones which did not have any acceptable response choices. Finally, respondents told if there were any important concerns missing from the questions.

A total of 65 students took part, returning 96 of the 22-item forms in all. As staff grew more familiar with the procedure, it became possible for students to do two of the forms in one class period. Students' comments on the directions, content, and format of items were used to make revisions, and occupational students' recommendation that there be a separate set of questions about their home schools was followed at the next stage of development.

Questions which these students found too unclear, frustrating, or irrelevant were then eliminated or revised. Also eliminated were items which all students tended to answer the same, since those items were probably too leading. The surviving 51 attitude items, home school versions of five of the items, and 12 demographic questions were then sent to Albany for forms clearance and presented to the AVEA Steering Committee for review in mid-April. The Committee made a number of suggestions for improving items and directions, and these were incorporated into the survey.

The resulting item pool was divided into parts for printing in four different survey forms. All four forms had 35 substantive items and 12 demographic questions in common. Two of the forms contained six items, designed specifically for students in half-day occupational programs, measuring attitudes toward their home schools. The remaining items were split into two non-parallel sets, each set going on half of the survey forms for occupational students and half of the forms for non-occupational students. One of the forms for occupational students is reproduced in Appendix A.

In the survey forms the first inside page contained a consent form. The major purpose of this form was to make real to students the instruction that they were free not to take part in the study, even if their presence in the room was not voluntary.

About two thirds of the survey items were attitude scales, asking students to circle a point on a scale in response to a judgment or opinion. Also included were questions to answer by writing short responses, checking one response choice, or checking several choices. The total number of items per form varied from 55 to 62, including demographics.

The Sampling Plan

At the meeting of the AVEA Steering Committee and project staff in December, 1979, a plan for sampling schools and students for the spring pilot testing was agreed on. Since the objectives of this phase were formative, the Committee decided that an adequate degree of representativeness in the sites could be achieved through a logical, rather than a strictly statistical, choice of sites. A geographical and demographic range of sites was formed by nominating one urban, one suburban, and one rural site in each of these broad areas in New York: western (Region 1); central (Regions 3 and 4); and eastern (Region 6). Figure 3 shows the sites which the Committee chose to invite. Within each site students in both occupational and home schools were to be surveyed, the students in general education providing a baseline or standard of comparison. The Steering Committee decided to approach sites by inviting the Directors of Occupational Education to take part and to have them invite their component schools. By using the schools which feed the occupational sites in the sample, the Committee was aiming to make the occupational and home school students roughly equivalent in background.

Decisions were also made about the sampling of students within schools. Random sampling was chosen for the purpose of allowing the broadest range of comparisons among subgroups, such as males and females, college bound and not, or employed and not. It was felt that _a priori_ stratification might prevent some useful comparisons from being made. The Committee further urged that students in two-year programs in an urban technical center be included in the pilot test. Regarding students in programs of occupational education that are conducted in the home schools, it was decided to include only students who are in wholly non-occupational programs. Otherwise the meaning of comparisons between students in occupation and general education might not be meaningful.

Recruiting Sites

John McCormick, head of the project Steering Committee, wrote the directors of the nine sites shown in Figure 3 urging them to take part in the pilot test. CIOE staff followed up the letter by inviting the directors to a presentation on the AVEA project at the Commissioner's Conference in Albany on 5 February.

Figure 3

Sites Invited to Take Part in the Spring Pilot Testing of Phase II

	Location		
Population	Western	Central	Eastern
Urban	Rochester	Albany-Schenectady	Nassau
Suburban	Niagara-Orleans	Southern Westchester	Suffolk 3
Rural	Steuben-Allegany	Warren-Washington	Suffolk 1

This presentation was attended by five of the invited directors, and a sixth was briefed personally during the Conference. CIOE gave a background briefing on the project, told the directors what was needed from them, passed out a project report and sample letter to local education agencies, and proposed dates for visiting the sites. The presentation was accompanied by discussion among the Steering Committee members, invited directors, SED staff, and CIOE staff.

The remaining directors were contacted by mail, and the process of setting exact times and places was carried out by telephone during the next two and a half months. All nine directors generously agreed to take part and to try to get permission to gather data in the component schools. Details of the arrangements were generally handled by a member of each director's staff.

Data Collection On-site

CIOE staff members gathered data in eight of the planned nine sites, as listed above in the Acknowledgments. Site personnel in both occupational and home schools were uniformly hospitable and prepared. The only exception occurred in one occupational school where a large part of the intended sample declined to show up for the survey.

The survey was administered by the CIOE site visitor, except at one occupational school where the tight schedule required the interviews and survey to be carried out at the same time. At that school, an administrator helped by conducting the survey. Data collectors followed the procedures described in Appendix B. Out of the 736 students who showed up for the survey, 733 took part. The other three did the following: one worked on a pressing task instead; one just sat quietly; and the last filled in the survey but gave suspicious responses. Students were willing and cooperative, and the survey forms presented no problems on site for either the data collectors or the respondents. Almost every student was able to answer all the questions in 30 minutes. Interviews with students were conducted on-site by the CIOE visitors, who tape recorded them for transcription later. The first ten interviewees were asked to respond to the survey questions orally and comment on them. The remainder were questioned using the guides in Appendices C and D.

One unique and one general problem came up with sampling students on-site. In the former case, a communication mix-up resulted in the surveying of some seniors in four-year, full day programs of occupational education. The latter problem had to do with the representativeness of students in the survey. In home schools, the students who took part tended to be either samples of convenience (i.e., intact classes) or a selection of top students. In the occupational schools, students who were capstoning or shadowing were not available for the survey, and one school provided almost an entire sample from one specific program. Procedures for making samples more representative are described below in the Recommendations.

Interviews With Parents

While visiting schools to administer the survey, data collectors obtained from the school staff telephone numbers of students' parents for the purpose of calling and interviewing them. These interviews dealt with the process and outcomes of the students' schooling. Following the interview guides in Appendices E and F, project staff talked with parents by telephone from Ithaca during the late afternoon and early evening hours. Callers made notes during the interviews, which took about 15 minutes each.

After a dozen interviews with parents had been held, it was decided to discontinue the calls. This decision was made primarily because of the very high number of calls placed for every parent reached. The hit rate of about one contact for every four calls placed was very wasteful of staff time. In addition, the interviews indicated that the lists of parents to call were somewhat contaminated with parents of other than seniors. This problem further reduced the yield of usable information per call. More workable methods for getting in touch with parents are proposed in the Recommendations section.

Processing and Analysis of Data

Data processing and analysis are described in detail below in the Results section.

Further Instrument Development

During the summer several steps were taken to enlarge the set of survey items. The empirical factors from the analysis of results from the spring guided all of these steps. First, project staff wrote and adapted one more set of questions. Next, four experienced teachers were hired to write items on a piece rate. To help explain the task and avert re-creation of the same questions, these teachers were given a description of the outcomes to be measured and a copy of the existing items. These writers produced nearly 400 new items. Internal review and editing of the in-house and hired items refined the set to 98 questions, which served as one input to a workshop, which was the next step in development.

The workshop, held in Cortland in mid-August, was attended by 20 teachers and 4 counselors in occupational programs in Region 9 of New York State. In one part of the workshop, participants reviewed and edited the set of 98 new items. Feedback on the items' clarity, relevance to students' experience, and acceptability to school staff were used for selecting and improving these questions.

A second task in the workshop was designed to create more new survey questions. Participants were asked to describe the things which students do and say which show positive and negative attitudes toward school, self, and the other hypothesized variables. A CIOE staff member took these behavioral descriptions and rewrote them into self-descriptive statements for students to answer by marking agreement or disagreement. At the end of Phase II, instruments for a fall field test were being prepared from this enlarged item pool plus the core of statistically validated items which emerged from the spring field test.

RESULTS AND INTERPRETATION

Data From the Survey

Following their administration to participating students, the questionnaires were assembled, numbered, and sorted by form. All completed questionnaires were visually inspected and edited to eliminate anomalous responses and to determine the range and nature of fill-in responses. Fill-in responses were scored independently by two raters, using the scoring models in Appendices G, H, I, and J.

A coding scheme was devised for each of the four questionnaire forms and the data were transferred into this scheme. The coding forms were used by the keypunching service of Cornell University Computer Activities Group to transfer the recorded data onto computer cards.

The Statistical Package for the Social Sciences (SPSS) was used throughout the data analysis. SPSS is a system of computer programs and data transformation procedures that is used widely around the country. It provides a wide range of options for statistical analysis and data manipulation. In general, the statistical analyses conducted will be designated here by reference to the SPSS subprogram that was used. More detailed descriptions of the procedures used to conduct the analyses are available in the various SPSS publications (Nie, Hull, Jenkins, Steinbrenner, and Bent, 1975; Hull and Nie, 1979; Norusis, 1979). Information on the statistical procedures themselves can be found in numerous standard statistical texts, such as those referenced in the SPSS publications.

To prepare the survey responses for analysis, the data file was transformed to adjust for the differences in items and item sequences on the different survey forms. The final data file consisted of 70 items, 17 demographic variables, 14 score indexes (based on item groupings determined prior to the questionnaire administration), and 8 factor scores for each respondent. The derivation and meaning of the factors is discussed below.

Initial data analysis consisted of using SPSS subprogram FREQUENCIES for the total data file and for the subfiles of occupational and non-occupational students separately. This gave frequency distributions for all items and various summary statistics such as means (i.e., average ratings), standard deviations (i.e., the scatter or dispersion among scores), and so on.

SPSS subprogram CROSSTABS was run to provide crosstabulations of all item responses with ten demographic variables. These variables were the following: type of program (occupational or non-occupational), sex, racial-ethnic grouping, post high school plans, number of hours the student worked each week, socio-economic status (SES) based on the Duncan SES rating of the father's occupation (Blau and Duncan, 1967), father's education, mother's education, father's occupation and mother's occupation.

Three additional variables were used to crosstabulate the responses of occupational students only. These variables were: student's occupational program area, dropout rate of the student's program area (high, low, or average) and the rate at which students in the given program area continue their education after high school (high or low). The latter two variables were based on a consensus of several persons who are familiar with occupational education in New York State. The subprogram CROSSTABS automatically ran a number of tests to determine whether the relationship between each demographic variable and item was statistically significant (i.e., not ascribable to chance).

For almost all of the 70 outcome items, it was possible to compute a group mean. For example, an item with a six-point response scale ranging from "strongly agree" with a value of 6 to "strongly disagree" with a value of 1, can have a mean rating computed. A mean of 4.0 would indicate that the average response was slightly in agreement with the item. SPSS subprogram BREAKDOWN was used to compute means for the attitude items broken down by the ten demographic variables (listed above) for all the respondents and, for vocational students, the three other demographic variables relating to occupational programs. Additionally, for each of the resulting 910 attitude item-demographic variable breakdowns (70 items by 13 variables), a one-way analysis of variance was conducted. This analysis was used to determine whether the differences in average item responses between the demographic groups, such as male versus female, were statistically significant.

The three analyses discussed above (FREQUENCIES, CROSSTABS, and BREAKDOWN) produced over 2,000 pages of printout, but only a small selection of those data are reported here. Turning first to CROSSTABS, the demographic variables are important both for describing the respondents of the survey and for judging biases in the sampling of respondents. As summarized in Appendix K, the background measures are given for the total group of respondents and for occupational and non-occupational students separately.

Two problems with the demographic questions on the survey (Appendix A) will be noted here. First, there was a high rate of nonresponse for items requiring students to write in a verbal (i.e., non-numerical) answer. The reasons for not responding probably differ from question to question. For example, at two of the occupational schools the data collector overlooked asking the students to write in their programs. As for the question on parents' occupations, students may know where their parents work but often not know what the parents' jobs are. It is also likely that information on parents' occupations is relatively sensitive. The high rate of nonresponse to the question on students' jobs (Appendix A, demographic #12) was probably due in part to the wording of the question.

The fact that the response rate was high for filling in number of hours worked (Appendix K, item #10) shows that the other non-responses are not merely a problem with fill-in questions. Thus the remedy for the question on students' current jobs may be to reword it. As for parents' occupations, students' memories may be helped if they are given a set of categories, with examples of jobs in each category, to check off. A similar solution to the question on occupational students' specific programs is also called for. These approaches are now under study for pilot testing and possible use in Phase III.

The second problem in the demographics deals with the coding of mothers' occupations. Parents' occupations are included as an indicator of SES, but it is not clear that occupations have the same SES for women as for men. For this reason, project staff did not apply the traditional Duncan scale to mothers' occupations. Similarly, the implications for SES of both parents working is not clear. Conversations with staff of the CIOE Sex Equity projects revealed that this is currently an unsolved research problem. Project staff will continue to look for solutions, so that parents' occupations can be related to outcomes more meaningfully. Some small problems with the wording or response choices in other demographics were found (e.g., the choice becoming a homemaker full time needs to be added to post-high school plans). These items are currently under revision.

A few of the findings and trends in the background data may be noted. Answers were received from 733 students, 53 percent of which were in occupational programs. Females are somewhat underrepresented in the vocational sample, as are blacks in the home school sample.

In describing their post-graduation plans, a much higher percentage of LEA students reported 4 year college as their choice (55 percent) than occupational students (11 percent). Paralleling that finding, 56 percent of the occupational students planned to enter military or other full time work, in contrast with 13 percent of the LEA students. It is interesting to note that 39 percent of the occupational students intend to continue their formal education after graduation.

A surprisingly constant pattern of current employment was found with 68 percent of the LEAs being employed compared with 76 percent of the occupational students. In contrast, the educational level and occupational status reported for parents showed larger differences between programs. For example, 52 percent of the fathers of LEA students have at least some college education, whereas 24 percent of the occupational group do. Similarly, about 29 percent of father's occupations fall in the four highest SES categories for LEA students compared with 5 percent of vocational students. These differences in background recall the question raised earlier as to whether differences in outcomes are due to the effects of background, educational program, or a combination of the two. This issue is discussed later in the chapter.

Although the analyses showed numerous interesting and statistically significant relationships, the large volume of tables made it inconvenient to use them as the primary test of outcomes. Also these analyses are not generally relevant for the major objective of this phase, i.e., to choose the best items to include in future questionnaires. The following discussion addresses this task more directly.

The first approach to this task began with the construction of the questionnaire. Items were written so as to relate to the hypotheses developed in Phase I (Figure 1). Scores for each trait or hypothesis could be computed for each respondent by adding the values of the respondent's scores on the relevant items. For example, the trait designated "Social Responsibility" consisted of five questions, each having a six point response scale. For each respondent, the trait score was the average of the responses to each item. This was computed by adding together the scale values, then dividing by five so that the final result would be in the same units as the items which made up the trait. In all, 14 scale scores were computed for each respondent.

The results proved to be unsatisfactory for a number of reasons. Differences among the four questionnaire forms led to differences in both item content and number of items among forms. This not only presented difficulties in computing trait scores but also meant that the traits differed somewhat from one form to another and thus might be measuring slightly different attitudes. Further analysis of the traits using SPSS subprogram RELIABILITY showed that their items had relatively low intercorrelations and had items on them which detracted from the validity of the trait. SPSS subprogram BREAKDOWN was used to provide breakdowns of the trait score means by the thirteen demographic variables (discussed previously). Results showed few statistically significant differences among the demographic variable subgroupings. A less serious problem was that a trait score could not be computed for a respondent if that person had omitted any one of the items that were included in the trait.

In view of the above difficulties, another approach was sought. An examination of the printouts suggested the possibility of broader scales accounting for other relationships among items. In other words, the results that came out of grouping the survey questions under the hypotheses of Phase I (Figure 1) were not very satisfying. Therefore, a decision was made to do factor analyses of the data. Factor analysis is a statistical procedure which shows whether some underlying pattern of relationships exists in the data such that the large number of individual questions may be reduced to a smaller set of item clusters or factors. If so, the factors may be taken as source variables accounting for the observed interrelations in the data (Nie, et al., 1975).

This analysis produces a factor loading for each item on each factor, that is, a correlation between the item and the factor. By examining the items with the highest absolute loadings on each factor, one can make a judgment regarding the underlying trait or attitude which that factor represents. It is also possible to compute factor scores for each respondent. Such factor scores are composite scales representing the theoretical dimensions associated with the respective factors. They are roughly comparable to the trait scores described above, although they are computed in a very different way. Such factor scores can be used in further computations and comparisons.

SPSS subprogram FACTOR was used to derive factors and factor scores. The factor analysis was complicated by variations among questionnaire forms with respect to number of items, item content, and response mode. Analyses of the total group, occupational and non-occupational subgroups, and the four questionnaire forms utilized different sets of items and different subgroupings of respondents in each case. Preliminary results suggested that some factors were based on only one or two items, making them difficult to interpret. Thus, the factor analysis was limited to those 31 items, common to all four forms, which relied on the same rating scale response mode. This decision was consistent with the advice of Borgatta (1979) cited above. Using these 31 items, factor analyses were conducted for the total group of respondents and for the occupational and non-occupational student subgroups.

Various statistical methods were tried which produced somewhat different numbers of factors and contributions of items to factors. However, all results were roughly comparable to the results of factor analyses for the entire group of respondents. That analysis produced eight factors accounting for 51 percent of the total variance. Although there were some significant correlations among factor scores, the strengths of relations are small enough to treat the factors as independent. Figure 4 describes these intercorrelations.

These factors and the items which define them are the same regardless of whether an orthogonal or oblique rotation is used. That finding confirms that the factors are not just an artifact of the statistical procedure. Figure 5 shows the survey questions which define each of the eight factors. Items were judged to help define a factor if they had a factor loading of .35 or higher and did not have high loadings on other factors. The titles given to each of the factors are the result of discussion and consensus among project staff. (Other titles might be appropriate depending on one's emphasis. Factor 2, for example, could be designated as "Accepting and valuing criticism" rather than "Attitude towards school: Teachers" since the items deal with both concepts.)

Figure 4

Correlations Between Factor Scores

Factor Score Number	Factor Score Number						
	1	2	3	4	5	6	7
2	.1864[a]						
3	.1266[a]	.0925[b]					
4	.2099[a]	.0970	.0455				
5	.0694	.0638	.0214	-.0836			
6	.0158	.0924[b]	.0342	.0004	.0105		
7	.0015	.0484	-.0264	.0138	.0465	-.0313	
8	.0680	-.0207	.0471	-.0997[b]	.0693	.1833[a]	.0018

[a] Significance = .001 or below.

[b] Significance = .01 or below but higher than .001.

By comparing the factors in Figure 5 with the hypotheses from Phase I in Figure 1, one sees that the factors are different, but compatible with the hypotheses. Students' responses distinguish three components of attitude toward school. Two of these overlap with evaluation and trust, which were covered in separate hypotheses. The hypothesized trait of confidence turns out to have a component dealing with career prospects plus a component dealing with ability to control the events in one's life. Where ability to communicate was hypothesized to be a part of "trust" (Figure 1), it turns out to be a separate factor. A result which confirms the soundness of the concepts being studied should be noted: students' responses grouped the items in ways that made sense according to the hypotheses. Thus, the analyses did not find any factor that was made up of seemingly unrelated items.

Figure 5

Factors and High Loading Items

Factor 1 - Attitude towards school: program

I enjoy going to this school.
My overall high school program has been worthwhile.
Most of my classes here are a waste of time.
At the end of the school day, I usually feel that I have done something worthwhile.
I feel like a real part of what goes on at this school.

Factor 2 - Attitude towards school: teachers/evaluation

When my teachers point out my mistakes, I try to improve.
My work here is evaluated fairly.
When my teachers here point out my mistakes, I usually agree.
When my teachers correct my work, I can learn a lot from it.
My teachers at this school understand the problems of students pretty well.
How often do your teachers here put students down?

Factor 3 - Attitude towards school: students/trust

Students treat each other with respect at this school.
If another student at this school found something of mine, he/she would probably return it.
People keep their promises most of the time.

Factor 4 - Self-confidence: career skills

At this school I have learned about how to find jobs that I might want.
At this school I got some ideas and information about the career or job I would like to have as an adult.
I have a clear idea of what to expect from the kind of career I want.

Factor 5 - Confidence: locus of control

In my life I rarely get to do what I want to do.
When you work with others, it is hard to get them to do their fair share.
With so much unemployment, I'll be lucky to get a decent job when I finish my education.

Factor 6 - Handling stress

When someone gives me a raw deal, I usually try to get even.
When someone criticizes me unfairly, I can handle it without getting mad.
I sometimes get into an argument without thinking how it will affect other people.
When I disagree with someone, I usually keep it to myself.

Factor 7 - Self-confidence: social confidence

I know how to present myself to a job interviewer.
It's usually easy for me to have a conversation with strangers.

Factor 8 - Social responsibility

While it may be important to help others, first you have to look out for yourself.
When someone gives me a raw deal, I usually try to get even.
I am willing to work for something that others will enjoy, even if I won't be able to use it myself.

Factor scores were computed for each respondent. These scores were expressed with a mean of 100 and a standard deviation of about 10. SPSS subprogram BREAKDOWN was run on each factor score using the thirteen demographics as independent variables. For each of the 104 breakdowns (eight factors by thirteen demographics), a one-way analysis of variance was run to see if there was a statistically significant relationship between the demographic variable and the factor score. This breakdown was done for the total group of respondents and for occupational and non-occupational students separately. Figure 6 shows which of these analyses were significant for all respondents and Figures 7 and 8 show which were significant for the two groups separately.

Appendix L lists all factor score means and standard deviation for the occupational and non-occupational students. The same information is listed for all demographic variables which had a statistically significant relationship with that factor score. Appendix M lists factor score means and standard deviations for statistically significant demographic variables for occupational students only, and Appendix N does the same for non-occupational students.

It is apparent from the analyses for the total group of students (Figure 6) that type of program (occupational vs. non-occupational) is the single most significant variable of the thirteen demographic variables. It is significantly related to six of the eight factor scores, five of them at .0001 level or less. That means that the differences in the sample's scores would occur less than one time in 10,000 if the underlying populations really did not differ. Other demographic variables which are significantly related to outcomes are post-high school plans, Duncan SES rating, and father's occupation. Although there are a number of statistically dependable differences in outcomes for the demographics, the strength of the effects are typically small. These are given in Figure 6 below each significance level on the line labeled Eta^2. For only four of the significance tests does the difference in respondents account for as

Figure 6

Summary of Results
For One-Way Analysis of Variance For Factor Scores For All Respondents[a]

	Factor Score Number							
	1	2	3	4	5	6	7	8
Type of program								
Significance	<.0001	.0001	<.0001	<.0001	ns	ns	.0075	<.0001
Eta^2	.0828	.0201	.0250	.2416	—	—	.0097	.0247
Sex								
Significance	ns	ns	ns	ns	ns	.0012	.0238	<.0001
Eta^2	—	—	—	—	—	.0144	.0070	.0255
Racial-ethnic group								
Significance	ns	ns	ns	.0410	.0567	.0347	ns	ns
Eta^2	—	—	—	.0166	.0154	.0172	—	—
Post high school plans								
Significance	.0082	ns	.0444	<.0001	.0537	ns	.0299	.0118
Eta^2	.0245	—	.0184	.1254	.0176	—	.0199	.0233
Hours worked each week								
Significance	ns	ns	ns	ns	ns	ns	.0011	ns
Eta^2	—	—	—	—	—	—	.0283	—
Duncan SES rating								
Significance	ns	.0093	ns	<.0001	ns	ns	.0465	ns
Eta^2	—	.0469	—	.0849	—	—	.0369	—
Father's education								
Significance	ns	ns	.0169	.0006	.0274	ns	.0030	.0078
Eta^2	—	—	.0201	.0313	.0184	—	.0261	.0228
Mother's education								
Significance	.0306	ns	ns	<.0001	.0330	ns	.0120	ns
Eta^2	.0175	—	—	.0385	.0172	—	.0208	—
Father's occupation								
Significance	ns	ns	ns	<.0001	ns	ns	ns	.0134
Eta^2	—	—	—	.0844	—	—	—	.0495
Mother's occupation								
Significance	ns	ns	ns	ns	ns	ns	ns	ns
Eta^2	—	—	—	—	—	—	—	—
Occupational study area[b]								
Significance	ns	ns	ns	ns	ns	ns	ns	ns
Eta^2	—	—	—	—	—	—	—	—
Study area dropout rate[b]								
Significance	ns	ns	ns	ns	ns	ns	ns	ns
Eta^2	—	—	—	—	—	—	—	—
Percent continuing education[b]								
Significance	ns	ns	ns	ns	ns	ns	ns	ns
Eta^2	—	—	—	—	—	—	—	—

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[a] Non-significant results are indicated by "ns." The Eta^2 statistic is calculated by dividing the between-groups sum of squares by the total sum of squares. It is a measure of the proportion of variance in the dependent variable that is explained by the independent variable.

[b] These demographic variables apply only to occupational education students.

Figure 7

Summary of Results
For One-Way Analyses of Variances For Factor Scores[a]
Occupational Students Only

	Factor Score Number							
	1	2	3	4	5	6	7	8
Sex								
Significance	ns	ns	ns	ns	ns	.0023	ns	.0444
Eta^2	—	—	—	—	—	.0241	—	.0106
Racial-ethnic group								
Significance	ns	ns	ns	ns	ns	ns	.0074	ns
Eta^2	—	—	—	—	—	—	.0440	—
Post high school plans								
Significance	ns	ns	ns	ns	ns	ns	ns	ns
Eta^2	—	—	—	—	—	—	—	—
Hours worked each week								
Significance	ns	ns	ns	ns	ns	ns	.0456	ns
Eta^2	—	—	—	—	—	—	.0303	—
Duncan SES rating								
Significance	ns	ns	ns	ns	ns	ns	.0107	ns
Eta^2	—	—	—	—	—	—	.0862	—
Father's education								
Significance	ns	ns	ns	ns	ns	ns	ns	ns
Eta^2	—	—	—	—	—	—	—	—
Mother's education								
Significance	ns	ns	ns	ns	.0332	ns	ns	ns
Eta^2	—	—	—	—	.0328	—	—	—
Father's occupation								
Significance	ns	ns	ns	ns	ns	ns	ns	ns
Eta^2	—	—	—	—	—	—	—	—
Mother's occupation								
Significance	ns	ns	ns	ns	ns	ns	ns	ns
Eta^2	—	—	—	—	—	—	—	—
Occupational study area								
Significance	ns	ns	ns	ns	ns	ns	ns	ns
Eta^2	—	—	—	—	—	—	—	—
Study area dropout rate								
Significance	ns	ns	ns	ns	ns	ns	ns	ns
Eta^2	—	—	—	—	—	—	—	—
Percent continuing education								
Significance	ns	ns	ns	ns	ns	ns	ns	ns
Eta^2	—	—	—	—	—	—	—	—

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[a] Non-significant results are indicated by "ns." The Eta^2 statistic is calculated by dividing the between-groups sum of squares by the total sum of squares. It is a measure of the proportion of variance in the dependent variable that is explained by the independent variable.

Figure 8

Summary of Results
For One-Way Analyses of Variances For Factor Scores[a]
Non-Occupational Students Only

	Factor Score Number							
	1	2	3	4	5	6	7	8
Sex								
Significance	ns	.0118	.0104	ns	ns	ns	.0025	.0003
Eta^2	—	.0184	.0190	—	—	—	.0263	.0379
Racial-ethnic group								
Significance	ns	.0082	ns	ns	ns	ns	ns	ns
Eta^2	—	.0454	—	—	—	—	—	—
Post high school plans								
Significance	.0112	ns	ns	ns	ns	ns	ns	ns
Eta^2	.0494	—	—	—	—	—	—	—
Hours worked each week								
Significance	ns	ns	ns	.0180	ns	ns	.0070	ns
Eta^2	—	—	—	.0459	—	—	.0464	—
Duncan SES rating								
Significance	ns	ns	ns	.0228	ns	ns	ns	ns
Eta^2	—	—	—	.0810	—	—	—	—
Father's education								
Significance	ns	ns	.0335	ns	.0071	ns	.0007	ns
Eta^2	—	—	.0363	—	.0475	—	.0635	—
Mother's education								
Significance	ns	ns	ns	ns	ns	ns	.0457	ns
Eta^2	—	—	—	—	—	—	.0337	—
Father's occupation								
Significance	ns	ns	ns	ns	ns	ns	ns	ns
Eta^2	—	—	—	—	—	—	—	—
Mother's occupation								
Significance	ns	ns	ns	ns	ns	ns	ns	ns
Eta^2	—	—	—	—	—	—	—	—

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[a] Non-significant results are indicated by "ns." The Eta^2 statistic is calculated by dividing the between-groups sum of squares by the total sum of squares. It is a measure of the proportion of variance in the dependent variable that is explained by the independent variable.

much as 8 percent of the difference in outcome scores. In Appendices L, M, and N, one sees that the absolute differences in scores are small, too. With larger sets of good survey items and improved demographic questions in Phase III, it is likely that more of the differences in outcomes can be related to respondents' backgrounds.

These results raised some other questions, however. These were:

- Are the outcomes (as measured by factor scores) similar for students of different backgrounds (as measured by the demographic variables) or do individuals' backgrounds seem to make a difference in their outcome scores?
- Compared with other demographic variables, how strongly does type of program (occupational vs. non-occupational) affect outcomes?

A regression analysis of the data was conducted using SPSS sub-program REGRESSION to identify how strongly the demographic variables were related to the factor scores (i.e., the outcomes). Strictly speaking, a regression analysis like this can only show how closely the differences in individuals' background, such as parents' education, are paralleled by differences in outcome scores. That is, the analysis describes how closely the two measures are associated, not whether one causes or influences the other. For ease of exposition, causal language will be used here to avoid repeating the awkward expression, "Variable X is associated with differences in outcome Y."

This analysis was a step-wise regression. The step-wise method finds the background variable which affects any one factor score most strongly, then the background variable having the second strongest effect, and so on until some minimal level of effect is reached. Results of this analysis are summarized in Figure 9. Here the three background variables which affect scores for each outcome factor are numbered in decreasing order of strength. Other variables meeting the minimal levels of influence on a factor are marked with an X, even though they add less than 1 percent to the amount of factor score variation accounted for.

Figure 9

Relative Influence of Background Variables on Factor Scores[1]

	Outcome Factors							
Background Variables	School Program	Teachers/ Evaluation	Students/ Trust	Career Confidence	Locus of Control	Stress/ Criticism	Social Confidence	Social Responsibility
1. Program (Occ./LEA)	1	1	1	1			3	2
2. Sex (M/F)		X	X			1	2	1
3. Race (White/Other)				X	2	X		X
4. Post high school plans								
Work	X				X	X	X	3
College	2			3			X	
Other				X				
5. Hours employed/week		3					1	
6. S.E.S. (Duncan scale)		X	X	2	X			
7. Father's education			X	X	1			
8. Mother's education				X			X	
9. Father's occupation								
Trades	X				3	X		
Manual/Mechanical		2	3				X	
Public Services	3					X		X
Private Services			2	X				
Professional, Business. Other								
10. Mother's occupation								
Homemaker	X					3		
Secretary/Clerk				X	X			
Private services								
Professional				X				
Public services		X				2		
Health, Business, Other								
Total percent of persons' factor scores accounted for by the top three background variables	10	4	3	26	3	3	4	5

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[1] Entries in the figure show the background variables affecting the scores for each factor. the numbers 1 through 3 denoting the three variables having the strongest influence.

Figure 9 shows that the background factor which affects outcome scores most often and most strongly is the program variable (Variable 1). It is the strongest determiner of scores for four factors and one of the top three determiners for six of the eight factors. Students' sex (Variable 2) is the strongest determiner of scores on two factors and a top influence on one other. The next most consistent influence is the number of hours a student works (Variable 5), which affects attitudes toward teachers and social self-confidence. Race (Variable 3) and socioeconomic status (Variable 6) have relatively little influence, implying that outcome scores did not differ very much as a function of either of those variables.

Although parents' occupations (Variables 9 and 10) and students' post-secondary plans (Variable 4) are never the strongest single influence on outcome scores, they are often among the three strongest influences. This finding suggests that outcomes are not all the same for students whose parents have different occupations and for students with different plans after graduation.

These results are only suggestive because of the small numbers of items per factor and the rather large part of the factor scores that is not influenced by the background variables. On the other hand, this analysis complements the analyses of variance reported above by taking into account the combined effects of background variables on the outcomes, where the analyses of variance described the effects of single background characteristics.

The statewide assessment of Phase III will provide a larger body of data from a more thoroughly developed instrument. Regression analyses will be useful then for securely finding the effects of occupational education and other background variables on the factor scores. This type of information could have applications both to the evaluation of occupational programs and to the identification of students who may need special attention owing to their discontents with school or with themselves.

The results for four individual survey items need to be noted, because they relate directly to an important outcome that is not covered by the scale-format items. These are items that deal with knowledge relevant to career decision-making, as contrasted with attitudes. One of the survey forms had an item asking students to list four skills they have that would help them to qualify for a job. This was followed by a parallel item asking them to list four skills or abilities which they lack that might be needed for getting a job. The scoring of these items was guided by a set of model answers shown in Appendices H and I. Occupational and home school students both listed an average of 2.7 abilities for the first question, but the difference in responses to the second question (average of 1.22 for LEA students and .93 for occupational) was statistically significant ($p < .05$).

The other survey form had a question asking students to list five things they could do right now to find out more about what a job would be like and what training it might require. Model answers for scoring this question are shown in Appendix J. The difference in responses was on the average about one more answer by LEA students ($\bar{x} = 3.2$) than by occupational students ($\bar{x} = 2.3$), which was significant ($p < .001$). On the same survey form a check-off question listed ten job titles (e.g., dishwasher, welder, gym teacher) and asked students to check the jobs that require little or no formal training. Differences in judgment between occupational and home school students were noted only for two of the jobs, welder and receptionist, in both cases the home school students checking them more often.

These data give a mixed picture of the knowledge which occupational students have for career decision making; LEA students give significantly more correct answers to two questions and occupational students did to one. The fill-in questions that asked for a verbal answer turned out to be problematic on other grounds, namely: they had the highest rate of non-response, and they are more influenced by students' writing skills than are the scale-type items. Changes in items on the knowledge component in career decision-making will be proposed later in the Recommendations section.

Six questions on attitude toward school are the basis for the last finding. With these six questions LEA students reported their attitudes toward their schools and occupational students reported their attitudes toward their home schools and their occupational schools. For all six questions, the most positive attitudes were reported by occupational students toward the BOCES and technical centers, and the least positive attitudes were reported by those same students toward their home schools. On three of the questions, ratings of home schools by both sets of students were very close. Thus for a large number of students occupational education is a welcome alternative. The interview data, which are presented next, clarify this point.

Interviews With Students

In addition to gathering questionnaire data from 733 students, research staff conducted interviews with 46 students, about half of whom were not part of the survey sample. These interviews were designed to serve three purposes: 1) to assess whether students felt the research and survey questions were relevant to their lives; 2) to provide a cross-checking, parallel measurement of some of the student attitudes measured by the pencil-and-paper survey; and 3) to get information on the contexts and potential sources of the attitudes revealed in the surveys.

The first two objectives were a part of the pilot test of the survey instrument. The intention was to provide independent cross-checks for both instrument and construction biases. When using a single type of instrument as the main source of data it is important to show that the results obtained are not due to either the type of instrument or the biases of the instrument developers. The third goal of the interviews, to acquire qualitative background information for the survey results, was based on the recognition that the non-experimental nature of the study leaves the survey's numerical results open to a variety of plausible explanations. In an attempt to go beyond mere description of the students' "end states", the interviews were also designed to elicit information about the processes through which these end states developed.

Sample

In keeping with the overall design of the project, an equal number of interviews were administered to vocational and non-vocational students. The total interview sample consisted of 46 students, 23 occupational and 23 non-occupational. Over the eight data collection sites this represents an average of three occupational and three non-occupational students per site. This is a deviation from the original Phase II design. Initially there were to be ten students interviewed per site for a total or 90 across nine sites. With the elimination of one site this left a potential of 80 interviews. Due to the unexpected length of the interviews, however, this scheme had to be altered. It was found after two site visits that a single staff member could best administer one set of surveys (including both occupational and non-occupational students and sites) and interview three students in a half-day at one school. To have done more interviews would have required cutting the typical time of 45 minutes to a point where the information was insufficient.

Thus the interview sample is small -- a little more than six percent the size of the survey sample. Judging from the consistency of responses made across widely varying sites, however, this appears adequate for the purposes of pilot testing the survey instrument and interview procedures. For the purpose of developing solid information about the sources of various attitudes, though, the sample size makes the date suggestive rather than conclusive. Recommendations for Phase III will take this into account below.

As noted earlier the occupational and non-occupational interview samples were not necessarily random with respect to class rank, future plans, socio-economic status or courses taken. This too will be considered when making Phase III recommendations.

Methods

With the three purposes, as well as the interview experiences of Phase I in mind, staff chose to develop interviews based on guides rather than on schedules or cues. Schedules, which consist of a uniform set of survey-like questions, are inflexible to the point of losing important student perceptions about the development of their attitudes. And cues, which consist of very general descriptions of topics of interest, lack the potential to produce systematically comparative data. As can be noted in Appendices C and D the chosen guides fall somewhere between these extremes. They offer the interviews a uniform structure without eliminating the option of probing interesting student perceptions.

The guides were developed to follow the Phase I hypotheses regarding the social outcomes of occupational education (Figure 1). As a result the guides allow for qualitative assessment of student attitudes with respect to school, self-confidence, social responsibility, the ability to handle stress, career decision-making skills, etc. And they pursue identification of program-related determinants of each of these outcomes. This orientation is reflected in the fact that both occupational and non-occupational interview forms consisted of ten discrete guides, each organized around a different hypothesized outcome and any program-related experiences that might have played a part in the development of a student's relevant attitudes.

Because the hypothesized outcomes of Phase I include an interest in both attitudes about oneself and about factors which make up one's environment, the interview techniques that were used to probe these two things varied accordingly. Outcome data were elicited both directly and indirectly, and analysis was based on both explicit and implicit indications of opinion. More specifically, for example, a student's attitude toward school was assessed directly by asking for opinions concerning schoolwork, teachers, fellow students, and education in general. A student's sense of his ability to handle stress, however, had to be approached more indirectly. Directly elicited self-report on such an issue is likely to suffer from misperception or posturing. Thus, rather than asking students if they felt they have an ability to handle stress, they were first asked about what situations made them nervous or anxious. Then they were asked how they deal with such occurrences. Similarly, career decision-making skills were measured by asking students what they would do to find out more about a job in which they were interested.

How such varied information affected the analysis of the interviews will be discussed shortly. It is important to state first, however, two caveats that must be attached to the Phase II interviews. The fact that these interviews are based on the Phase I hypotheses has two major implications for how they can be used.

As noted above, the hypotheses from Phase I are not identical with the factors which were empirically derived through analysis of the survey data. Thus the interview questions, which aimed at the hypotheses, were not always suitable as a reliability check on the measurement of the factors by the survey.

Second, it should be recognized that developing the interview guides in accordance with the Phase I hypotheses also limits what the interview data can suggest about what may have been influential in the development of the student attitudes documented. The Phase I hypotheses tend to focus on the impact of the occupational education experience. As a result there is an implied emphasis on what it is about occupational education programs that produces the hypothesized outcomes. Following this emphasis the Phase II interview schedules were designed to elicit information which would allow qualitative comparisons of occupational and non-occupational programs. This is important information, but, as the demographic results of the survey indicate, it cannot account for all of attitude development displayed by students. The students' work experiences, home lives, and past school experiences also play a part. Thus, without information about these factors the interviews can do little to isolate the impact of the experience in occupational education. Informed speculation, rather than more definitive conclusion, is the most that this analysis can yield.

These are noteworthy reservations. They are reflected in methodological recommendations for Phase III. In spite of the limitations they represent, however, analysis of the interview data was carried out. This afforded qualified but helpful reliability checks on the survey. It also allowed a pilot of our analytical techniques and suggested some interpretations of results worthy of further consideration.

Analysis of the interview data reflects the three stated objectives of the interviews. Interviews were tape-recorded and transcribed verbatim, following which staff performed various operations on the transcriptions in accordance with each of the stated purposes. Students' responses to questions about the relevance of the survey and research questions, for example, were taken at face value. Any criticisms or recommendations offered by students were considered valid and instructive. Use of the interviews as a parallel measure of social outcomes, on the other hand, required conversion of the data. Student responses to pertinent questions were qualitatively contrasted and then scaled so as to allow for quasi-statistical comparisons. Whenever staff ratings of student responses represented a major conversion of the data, sample checks for inter-rater reliability were conducted in order to assure the comparability of the data. With this established, general comparisons of a "more than" or "less than" nature could be developed and used as "tests" of the survey results.

For the purpose of isolating possible determinants of survey results a qualitative analysis of the transcripts was carried out. At the surface level this consisted of documenting any factor noted by a student as developmentally influential. At the interpretative level this involved both the development and comparison of patterns of attributions, especially with respect to the occupational/non-occupational split. Both forms of analysis were productive. Even noting the aforementioned caveats they offer useful direction for Phase III.

Results

The discussion of the interview results will be presented in three major sections, each devoted to one of the noted purposes of the interviews. The first two deal with development of the survey instrument and the third is concerned with possible interpretations of the survey results.

Survey Relevance.

Use of the interviews as a monitor of the relevance of the survey proved informative. The need for specific changes was illuminated, while support for our interest in the social outcomes of occupational education and education in general was firmly established.

In general, students interviewed were pleased to be asked for their perceptions and opinions regarding their education and social development. They were willing to respond openly about teachers, curriculum, students, values concerning others, grading, who they turn to for help in a variety of situations, and what makes them nervous or anxious. They felt these were factors in their lives that should be of interest to researchers. More specifically, there was universal approval of questions concerning the details of life at school. Discussions of the quality of teaching and the respect shown students were informed and opinionated. Similarly, students confirmed the project's questions about evaluation and self-confidence with respect to communication and careers.

Students also supported the project's interest in outcomes such as the ability to handle stressful situations, to establish trusting relationships and express a sense of social responsibility. There was less consensus among them, however, as to how effectively a survey could measure these outcomes. Many students pointed out that behavior related to these areas of development is highly situation-specific. Whether a student chooses to help others or to look out for him- or herself, for example, is likely to be contingent upon circumstances. This means that a survey question requiring a choice of one or the other does not allow most students to express what they feel constitutes positive development in this area. Consequently many students felt that survey items employed to measure these outcomes could easily force a choice among undesirable alternatives. This is a significant complaint. It draws into question the reliability of such items to measure what they propose to measure. Development of the Phase III survey must take this into account.

Parallel Measurement. A comparison made between certain interview and survey results provided a constructive cross check of the project's major data source. The assumption was made that if the survey results concerning a comparison between occupational and non-occupational students were replicated using a different method this would suggest the reliability of the survey. The survey results would be more likely to represent the genuine feelings of the students than to represent an artifact of the instrument employed.

The conclusion of the analysis of this parallel measurement is that, by and large, the survey is a reliable measure. The survey results cross-checked were the differences found between vocational and non-vocational students' responses on seven outcome dimensions. Of these seven survey results six were replicated by the interviews.

The specific dimensions included were: Attitude toward school: program; Attitude toward school: teachers; Attitude toward school: students; Confidence with respect to career skills; Ability to handle interpersonal stress; Confidence with respect to social skills; and Social responsibility. These outcome dimensions were chosen because they were judged comparable between the survey and the interviews.

The Locus of control dimension was not included, because it was not measured as such in the interviews. Although related questions were asked, interview and survey measurements of this dimension were not considered comparable. Explicit Locus of control data in the interviews were insufficient to qualify the data for a valid conversion into quasi-statistics.

Similarly, certain outcome dimensions that were part of the interviews, such as "the ability to use evaluation constructively" or "the ability to establish trusting relationships" were not discussed here because the empirical factors that measured them were more directly concerned with attitudes toward school. Efforts will be made to develop more distinct measures of these traits for use in Phase III.

Returning to those dimensions considered comparable we find that the interview and survey results are in agreement on six out of seven dimensions. Most importantly the interview and survey results indicate that occupational students report a more positive attitude toward their school program and the teachers and students they encounter in it than do non-occupational students. On the survey, occupational students reflected this difference by agreeing more often with statements such as, "My overall high school program has been worthwhile;" "My teachers at this school understand the problems of students pretty well;" or "Students treat each other with respect at this school." In interviews this was paralleled. Occupational students more often said things like, "I really enjoy school now;" "My BOCES teacher is the best teacher I've ever had;" or "The class [referring to a BOCES class] has fun together." In contrast non-occupational students more often expressed that they didn't "mind going to school" or referred to the negative tension created by clique formation in their schools.

The survey and interview results are also in agreement that occupational students report more self-confidence with respect to career skills. On the survey, for example, occupational students more often agreed with the statement, "I have a clear idea of what to expect from the kind of career I want." In the interviews they more often said things like "Now I know what I want to do," while non-occupational students indicated a lack of specific direction.

For the remaining three dimensions it is interesting to note that neither the survey nor the interview results ever favor occupational students. The two methods are not in agreement on all these dimensions but never does one method favor one group while the other method favors the opposing group. This offers support for the reliability of the survey beyond the fact that the interviews agree with the survey results on six out of seven dimensions. It suggests that the survey instrument is reliably sensitive, without bias, to major points of difference between the student groups.

Both methods show no significant difference between the two groups' self-reported ability to handle interpersonal stress. The groups display a similar distribution of responses to the survey statement, "When someone criticizes me unfairly, I can handle it without getting mad." Likewise, in the interviews, both groups offered situational qualifications to a wide variety of non-specific solutions.

The interview analyses also support the survey findings that non-occupational students report higher levels of social responsibility. They more often disagree, for example, with the survey statement, "While it may be important to help others first you have to look out for yourself." And in the interviews, when asked to respond to the same statement they more often noted the need to work for the good of others. The agreement between interview and survey here suggests yet another claim of survey reliability. The interview measure consisted of asking the students two of the survey questions measuring this dimension. These were followed by interview probing. The interview thus produced a similar result even while probing qualitatively from the same starting point as the survey. This is a direct indication that the questions are reliable, for even when students had an opportunity to qualify or redefine them the questions produced the same significantly different responses.

Not all interview results agree with the survey results, however. On the outcome dimension regarding students' self-confidence in social skills the survey results favor non-occupational students while the interviews suggest there is no significant difference between the two groups. This is a notable discrepancy. It is difficult to explain. The survey results show that non-occupational students are more likely to agree with statements such as "I know how to present myself to a job interviewer;"or "It's usually easy for me to have a conversation with strangers." In the interviews there is no indication of this difference. In fact, many occupational students noted in the interviews that their confidence in this regard has been greatly improved by various occupational educational experiences.

One possible explanation is simply that the interview method is less sensitive than the survey method for detecting differences that are statistically significant in a large sample of persons, but that are not socially important or influential. The fact that the differences between groups on survey dimensions were small in absolute terms suggests that interview methods should not have been expected to detect all of those differences.

Other possible explanations are the following:

- Students are less inclined to give self-effacing answers in an interview situation.
- Interview responses may be biased here by the non-randomness of the sample of respondents.

These latter two explanations do not account, however, for the prevalence of agreement between survey and interview results. Thus, the first explanation seems most plausible.

In conclusion, in spite of one disagreement, the interview data parallel the survey results, thus confirming their reliability. Representing a different and independent method, they replicate the survey findings for six out of seven outcome dimensions.

Interpretation of Survey Results. Most interesting of the purposes for the interviews is the interpretation of the survey results. The survey by itself can only portray numerical relationships. It is mainly a device for description. It shows tendencies, but meaning is left unclear. One function of the interviews was, thus, to develop qualitative information that might give meaning to some of the survey findings.

To this end students were asked to identify the kinds of experiences that had influenced their attitudes toward school, themselves, and others. In line with the project's focus on the social outcomes of occupational education, emphasis was placed on the significance of schooling in the developmental process. In spite of the previously stated caveats with regard to this focus, the interpretive findings are especially useful in this pilot testing stage of the research. The interview sample was small and non-random, and the focus on the impact of occupational education deemphasized the effects of students' experiences outside of school. Nevertheless, the interviews reveal possible causal relationships and suggest points for closer study in Phase III.

The survey results are based on measurement of eight outcome dimensions which were derived from a factor analysis of survey responses. Even though the interview questions were aimed at the hypotheses of Phase I, interview data will be used to interpret the scores on the post hoc factors. Survey results will be considered where interview information seems sufficient and appropriate. Finally, in light of such previously stated caveats, it is important to note that the discussions that follow are not intended to be interpretations nearly as much as they are meant to be suggestions to follow up in Phase III.

The survey results indicate that occupational students have a more positive attitude than non-occupational students toward all three school characteristics -- program, teachers, and students. They also indicate that the program a student is in, occupational or other, is more strongly associated with the attitude toward school results than any other demographic variable. Post high school plans and fathers' occupations are also associated with these results, although less so. These data suggest that participation in an occupational program has something to do with a positive attitude toward school.

The interview findings consistently support these survey results. Occupational students overwhelmingly indicated that they enjoyed school or thought positively about education because of their occupational experience. Some students stated this generally; e.g., "I never cared about anything until I started coming to the BOCES." Others pointed to particular aspects of the occupational curriculum that made it more positive than the regular home school experience, e..g., "It wasn't like a regular high school here,... what I do here relates to getting my goal."

Comparisons between occupational and non-occupational programs were offered regularly with enthusiasm and sincerity by occupational students. These provide detail to the interpretation of the attitude toward school results. One of the most commonly noted characteristics of occupational programs, to which positive educational attitudes were attributed, was the direct relevance of the occupational experience to the world of self-support. One student observed that "Here you know you are doing something for yourself." Another remarked, "The work is different (at BOCES); you learn something you're interested in." The implication, often supported by reports of non-occupational students, is that this is not true of the non-occupational high school curriculum.

Another characteristic of occupational programs often discussed was the positive student-teacher interaction that develops. In response to the question, "What do you think about your teachers here?" one occupational student responded, "Excellent. He has to be the best teacher... he lays it right on the line, what he expects from you, and you know it. And I, really, even in my home school, don't think I've ever had a better teacher." Other vocational students put it more specifically; e.g., "You're closer to a teacher here than at the home school," or, "Teachers try to help you more (here) than at the home school. At the home school, the teachers just give you work and you are supposed to do it. If you don't do it, too bad. In this school they help you do your work." In contrast, and in support of the survey results, non-occupational students reported less personal and supportive responses from their teachers. A sample of their comments follow:

- "Teachers here treat their work more as a job."
- "Teachers are pretty good, but they treat you like kids"
- "The student has to initiate... the teacher thinks that if the student needs help or wants help he'll come and see him."
- "Teachers here understand students' academic problems, but not kids' personal problems."

It would appear then that occupational teachers treat their students with more individual care than do many non-occupational teachers. This is an important finding. It does not offer a full interpretation of the survey results, however. The regression analysis, for example, suggests that the number of hours a student works per week and whether a student's father is a manual laborer are also associated with a positive attitude toward teachers. Noting, then, that occupational students are more likely than non-occupational students to work 16 or more hours per week and to have fathers who do manual work, one might interpret that the attitude toward teacher result favoring occupational students is a function of an interaction between certain kinds of students and certain kinds of teaching and curricula. It may be that those students who choose to participate in and complete an occupational program are predisposed culturally and socio-economically to respect a teacher with a work orientation and work experience outside of education. Thus it is likely that occupational education contributes to a positive attitude toward teachers when there is a reasonable "match" between the interests and background of the students and teachers.

The interview data do not include much information about students' home lives or parents, so it is difficult to sort out the interaction between students' backgrounds and the program. Nevertheless, the interview findings are consistent with an interpretation of interaction. A sense that students treat each other with more respect and tolerance in the occupational programs comes through clearly in the interviews of both groups of students. Occupational students offered the comparison between student relations in the two schools, noting that it was a salient difference. Moreover, non-occupational students consistently mentioned the tensions created by cliques in their home schools.

This trend was shown by remarks of both occupational and non-occupational students about their home schools. The following quotes from two occupational students show a contrast between the two types of program:

- "In my home school it's divided up into different groups of kids and a lot of times one group will make fun of somebody from another group, different people. But up here people don't seem like they are like that. They don't do that."
- "I get along with kids from other schools [at a BOCES] better than I do with kids at my home school."

The following remarks from two non-occupational students make the same point:

- "I think this school is just all for yourself, whatever you can get out of it yourself. I have friends, but the kids in the school are not friendly... The kids are not, like, sociable. There's different groups and all these groups hate each other."
- "It's like everything revolves around little cliques, so if you're in a clique, that's great. If you're not..."

Although these interview comments do not explicitely offer an explanation for why participation in an occupational program is strongly associated with a positive attitude toward other students, they are consistent with two plausible and interrelated possibilities. First, occupational programs may foster more positive attitudes towards peers by establishing non-threatening and non-competitive curricula and environments. Students may simply interact with less tension because of the material and the organization of the program. On the other hand, occupational programs may also have a positive effect on attitudes towards peers because the occupational group is much more homogeneous than the non-occupational group. Occupational students, for example, tend to be lower in socio-economic status, to have parents with less education, to be more interested in working full time right after high school, etc. For students with this background there may be a tendency to fare poorly in the social and academic competition of a traditional non-occupational program where college preparation is the standard. The homogeneity of the occupational group itself, especially as it interacts with the nature of the program, may thus be partially responsible for the more positive peer interactions reported by occupational students.

In sum, then, on the issue of occupational students' more positive attitudes toward school, the interviews suggest that three occupational program features are instrumental: 1) the immediate relevance of the curricula to the world of work; 2) the positive i.e., caring and helpful, relations with teachers; and 3) the friendly relations among peers. Other aspects of occupational programs were mentioned in this light but never as consistently or independently as these. The general impression portrayed by the interviews thus suggests that non-occupational public high schools represent a competitive and somewhat unreceptive atmosphere for a significant number of students. Non-occupational schools were called "cold and impersonal," and students often noted an intense within-school pressure to succeed academically. In contrast, occupational programs appear to offer a more nurturing and personal environment at least for the kind of student who is likely to participate in such a program. The pacing, work, and methods of evaluation are more individualized. Classes are smaller, teachers work more closely with students, and the students are more likely to get along with each other.

It is understandable that such a program is likely to have a positive effect on participants' attitudes towards school. Participants choose to attend in accordance with their interests, values, and past educational experiences. They are generally seeking an alternative to the traditional academic program. Thus, when they experience a program that provides a supportive setting for pursuing their chosen skills and interests, the positive potential of the educational enterprise is highlighted.

The survey results pertaining to students' confidence in their career skills indicate that three student characteristics are associated with high levels of confidence. Most strongly associated is participation in an occupational program. This is followed by low socio-economic status and non-college-oriented post high school plans. As with the attitude toward school results the interview data suggest that a student-program interaction best explains the findings. Occupational students clearly attribute much of their career confidence to features of their occupational programs, and yet it is evident that these students are interested, when they enter the program, in pursuing a specific, non-professional career following graduation. The program, then, seems to function as a catalyst for the development of skills that are congruent with students' prior interests and values. This, in turn, builds confidence, at least with respect to the skills and interests pursued.

A number of occupational program features were identified as salient in this regard. Students often observed, for example, that occupational programs provide more opportunities to experiment with and test out various work tasks and situations, e.g., "I had the opportunity to try and do more things here." This suggests that by the time occupational students are seniors many of them have gone through a career selection process based on hands-on experience. They often know what area of a particular occupation interests them the most. This is not true of most non-occupational students, even if they intend to go to work immediately following graduation. A significant non-occupational attitude toward work, jobs, and careers is well reflected in one student's comment that "Future employment is iffy. You can't predict for sure; you can't know for sure." That the non-occupational program has something to do with this attitude is suggested by comments like, "This school [non-occupational] doesn't help you for a career after school at all."

The career orientations of the two programs are obviously quite different. One tends to emphasize generic skills (reading, writing, math) and college preparation while the other focuses on the development of specific and immediately employable work skills. This certainly contributes to the difference found in students' career related self-confidence.

However, the role of other factors should not be overlooked. For example, the student groups under consideration are self-selected. Students who choose to enter and complete occupational programs certainly possess a different attitude toward careers and work initially. Their time frame for being prepared to successfully compete for full-time employment is certainly different from that of a student who is contemplating "some profession in the sciences after six years of college." It is also evident in the demographic data that socio-economic status is associated with occupational students' high levels of career confidence. There is an inverse relationship between SES and career-related confidence; and occupational students tend to be lower in SES than non-occupational students. This implies that the work of a student's father has an effect on the student's career orientation. The interviews were not designed to probe this possibility and so offer no explanation here. It is important, however, and will be addressed in Phase III.

What can be said about the survey result, then, in light of the interviews, is that both program differences and differences in the lives of the two groups of students contribute to the finding that occupational students have more confidence in their career skills. Students bring different career orientations to their programs, but as students and programs interact the programs tend to instill either confidence or insecurity with regard to these orientations. Occupational programs appear to foster the confidence of those who complete them.

Neither the locus of control outcome nor the ability to handle stress outcome on the survey show the differential effects of programs. There is no significant difference between the responses of occupational and non-occupational students. Because the interviews were designed to probe the impact of programs, they offer little explanation. Based on findings derived from the regression analysis it would appear that the education and occupations of students' parents, as well as the sex of the student, are significant factors here. The Phase II interviews did not explore such possibilities. One might speculate, however, that the programs have a developmental effect on the students in each group. Not until the project has a pre-measure of students' attitudes and development will this be tested.

According to the regression analysis students' survey responses about confidence in social skills are most strongly associated with how many hours per week they work. Students who work 16 or more hours per week are more likely to have a high level of social self-confidence than a student who works fewer hours or not at all. Next most strongly related is a student's gender. Females report significantly higher levels of social confidence than males. Finally, students' educational program is also associated with their response, non-occupational students registering higher levels of confidence than occupational students.

Again, the Phase II interviews offer little substantial explanation. They cannot, for example, help to sort out whether students who are more socially adept seek out more work or if the long hours of work contribute to social confidence. Most likely both interpretations are valid, but the interviews do not suggest how. The interviews also say little about the social impact of being a young woman. One might hypothesize, from a cultural perspective, that this society expects women to be more capable of relaxed social interaction, but there is nothing in the interviews to test such a hypothesis.

On the other hand, the interviews do suggest why non-occupational students report higher levels of social confidence than occupational students. The data suggest that this may be a matter of self-selection rather than of differential program effect. That is, the students who choose to attend occupational programs may have less social confidence than non-occupational students because they have not fared as well in the academic and social competition fostered by schools.

The surevey results pertaining to students' level of social responsibility are similar to those concerning social confidence. They are different enough, however, to warrant somewhat different speculation as to their meaning. The most strongly associated demographic variable here is that of gender. Females tend to display more social responsibility than males. Type of program is slightly less related, non-occupational students tending to report higher levels of social responsibility than occupational students. Post high school plans are also relevant, with students who do not plan to go to work immediately tending to report higher levels.

The interviews afford no insight into the meaning of these results. As mentioned previously, the significance of gender was not directly addressed. Thus the relationship among these three demographic variables is difficult to assess. It does appear, however, that it is more a function of students' backgrounds than of their school programs. Gender, the major contributing variable, crosses the school program distinction. Also, noting that the non-occupational sample has eight percent more females, it is possible that the result favoring the non-occupational group is partly a function of sex-related differences. Similarly, CROSSTAB analysis of the demographic results showed that females are less likely than males to be planning on full-time work immediately after graduation. Thus, the gender variable may modify the rest of the results. This leaves the interviews mute on questions raised by the significance of these three variables when taken together.

This section has been, in effect, a pilot test of the usefulness of interview transcripts for interpreting survey results. Given the limits of the data gathered so far, the interviews show a good potential for adding meaning to the statistical trends from the survey and for suggesting explanations of some of the data. When the traits being surveyed and those being probed in the interviews are matched more closely, the explanatory power of the interviews will be increased.

CONCLUSIONS AND RECOMMENDATIONS

In this research, instruments, procedures, and analyses for assessing selected non-technical outcomes of occupational education were pilot tested. The specific outcomes that were studied derived from Phase I of this project, and the results were encouraging. The instruments which were developed were found to be sensitive to differences in students' educational programs and in students' backgrounds. This conclusion is tentative, pending the development of a second generation instrument and its administration to pre- and post-program samples of students. Specific recommendations for continuation of the research follow.

Instrument Development

The development, pilot testing, and analysis of survey items for Phase II have resulted in the selection of a single item format and of a core set of 29 items (Figure 5). Students' responses group these items into eight distinct and relatively independent clusters which can be thought of as factors or tentative factors.

For each cluster there is now a core of about 3.5 survey questions which have been proven by field testing. A larger number of items per cluster is needed in order for the results of the statewide assessment in Phase III to be convincing. Since the time of the spring pilot test, a pool of over 150 new survey items, which was in part screened and in part inspired by occupational teachers, has been developed. These new items need to be pilot tested for the purposes of empirical item selection and scale development.

Only seniors were included in the spring pilot test. The present design for the statewide assessment calls not only for such a posttest, but also for pretesting of underclass students to give a baseline for measuring change. Some pilot testing of juniors or sophomores is needed then in order to ensure that the instruments are not too hard for the younger students in the statewide pretest.

A pilot test of the new survey questions on underclass students is thus recommended for the fall of 1980. These new items should be assigned to survey forms in combination with the core items from Phase I, so that the core items can serve to anchor the clustering of new questions into factors. These instruments should be analyzed as those in Phase II were, so as to produce meaningful and statistically strong instruments for use in the statewide assessment.

Since this data gathering is for the purpose of instrument development, it does not need a tightly representative sample of sites. That is, since these data are for improving the instrument and not for documenting outcomes, the sites may be chosen on practical grounds. Members of the AVEA Project Steering Committee have already generously offered their sites for this purpose.

Design

The pilot testing carried out in the spring of 1980 and proposed for the fall of 1980 reflect a research design that had been proposed for the statewide assessment of Phase III. That design was to compare the posttest scores of seniors in the spring of 1981 with the pretest scores of juniors in the fall of 1981.

Two relevant points have become apparent since that design was conceived. First, the seniors who were interviewed for the Phase II pilot test said things indicating that the end of the school year may have a unique influence on students' attitudes. In the same vein, it seems likely that the start of the school year also has a unique impact on students' attitudes. Supporting these surmises is firm evidence that students' scores on achievement tests show a very dependable change during the summer months (Horst, 1976; Tallmadge & Horst, 1976).

The import of this thinking is that differences between the survey scores of juniors in the fall and seniors in the spring may well reflect a mixture of the effects of occupational education and the irrelevant effects of the different testing times. Such a design would make it harder to interpret the outcome measures than would a design which gathered pre- and posttest data at a single time of year.

The second point is that little is known about the rate of attitude change in secondary students at the start of two-year occupational programs. It seems likely that occupational students may start to change attitudes toward themselves and school quickly on entering the programs. Thus it may be nearly impossible to get a clean pretest measure from juniors even fairly early in the fall.

These two points lead to the next recommendation: that the pre- and post- measure in the statewide assessment of Phase II both be gathered in the spring of 1981. Instead of using juniors in the fall as the baseline measure, using sophomores in the spring is recommended.

Admittedly, the division of sophomores into occuaptional and non-occupational students is not possible at that time. Although sophomores' preferences for their junior-year programs are known in the spring, these preferences are only a crude indicator of occupational enrollment in the fall. The following factors operate to change the makeup of the population of occupationally-bound students so that only part of it becomes the population of occupationally enrolled ones:

- Some sophomores fail required subjects in June, which keeps them from going on to occupational programs;
- Some sophomores change their minds about programs for the following year;
- Some families move out of a district between spring and fall semester; and
- Some juniors withdraw from occupational programs very early in the fall.

In order to gather pretest data from sophomores in the spring and still be able to distinguish the occupational and non-occupational students in that class, the following solution is recommended: students who were pretested in the spring should be separated into home school and occupational cohorts in the fall of 1981 by checking actual enrollment in the occupational schools. That is, the data for sophomores should be gathered in the spring, at the same time that the seniors are surveyed, but the breakdown of pretest scores into occupational and others should be withheld until actual enrollments are known in the fall. This procedure allows a third and possible useful baseline group to be identified: students who wanted to go on to occupational programs but did not.

Sampling

A number of problems with sampling in the home schools were noted in the spring field test. When class lists of home schools proved too sensitive to obtain, project staff urged home schools to provide random samples. Although they cooperated with the study in other respects, home schools tended to give samples of convenience or of superior students. The complexity of scheduling in the component schools probably makes it very hard to get clean random samples without unusual effort by the schools and without making future researchers unwelcome in the schools.

The problem of getting representative samples of students remains. It is recommended that CIOE gather data from intact classes in the home schools, but that these classes be selected and oversampled in ways that allow a random sample of individuals to be constructed by careful discarding of data. Among the tactics now under consideration for selecting classes are these: to use

- study halls when surveying sophomores to get a fair cross section of students;
- physical education classes when surveying seniors for the same reason;

- the times of day when occupational students are being bussed to get classes of seniors that are pure LEA; and
- the tracking that is at least implicit everywhere to select classes which, in combination, approach a cross section of students for each school.

On advice of the AVEA Project Steering Committee, it is recommended that access to home schools and selection of classes be coordinated through contacts in the local technical center or BOCES. The procedures can be expected to vary from site to site with such factors as the home school's own tracking system and percent of home school students going to half-day occupational programs. This research should be described to home schools in terms that encourage cooperation both with the project and with occupational education in general.

Design and Conduct of Interviews

The interviews with students during Phase II had three purposes: to establish the relevance of survey questions to students' concerns, to provide a cross-check on the data from the survey, and to gather information about the probable sources or causes of the measured outcomes. The first two purposes made the interviews a part of pilot testing the survey instrument. Those purposes are relevant to instrument development, but not to the statewide assessment in Phase III. In the same vein, the somewhat uncontrolled sampling of students in Phase II was useful for instrument development, but will not be for the statewide assessment. These considerations lead to the recommendations below.

The interviews in the statewide assessment should be used mostly to develop explanations of survey results rather than to be a parallel device for measuring the same things. The need to interpret the survey's statistical results argues for the interviews to probe the processes by which attitudes develop. Nevertheless, the interviews should be concerned with more than the program features that affect attitudes. They should also gather information on students' background and experiences outside of school. As shown in the demographic data, the impact of the following variables needs to be explored in some detail: parents' occupations and education, students' perceptions of parents' values concerning work and school, students' sex, experiences at work, feelings about their academic ability, and rationale for future plans.

In order for the interviews to explain the survey data effectively, they must be based on much larger and more representative samples of students. There will need to be either more data collectors per site or more days per site than in Phase II in order to increase the number of interviewees. Representativeness can be achieved by selecting students on-site from class lists.

Details of the Survey Form

On the spring survey there was a high rate of non-response to fill-in questions on students' occupational programs and parents occupations. In addition, some doubts arose about the effectiveness of the fill-in questions dealing with students' knowledge related to career decision-making. Specifically, students' answers were probably affected by their writing skills as much as by their career knowledge. Some changes in the survey form are proposed here to eliminate these problems.

To increase the response rate on questions about students' programs and parents' occupations, the use of check-off items rather than fill-ins is recommended. Although there may be a large number of response choices, they can be grouped under descriptive headings to help the reader.

A different type of change is recommended for improving the data yield on students' career knowledge: to use the same questions, but in the interviews rather than in the survey. The effort and skills of writing will not be a deterrent to answering when students can answer orally. This change will also have the benefit of removing from the survey the one set of questions which looked like test questions rather than opinion measures.

Measuring Students' Values Regarding Work

Although the literature review of Phase II found that work and training for work have benefits for individuals in addition to pay and technical competencies, the value of work was not measured as a separate outcome in the survey for two reasons. First, the existing measures of the trait were not convincing. Second, it was believed that occupational students have much more work experience than students in home schools. That difference, if real, would make it hard to separate the effects of occupational education on work values from the effects of work experience.

An important finding in the spring survey was that occupational and home school students both report a fairly high, comparable frequency and amount of current employment. Thus it is possible to study the effects of programs on work values with the effects of employment neutralized.

With the urging of the AVEA Project Steering Committee, students' work values are recommended as an outcome to measure. The development and adaptation of relevant items should be carried out in time for the proposed fall field test.

Increasing the Data Yield From Parent Interviews

When project staff tried to hold telephone interviews with students' parents, two problems arose: it was hard to reach the parents, and the sample that was reached included some parents of unintended grade levels. The lists of parents to call had been provided on-site by school personnel. To improve the yield of data, a revised system for identifying parents to call is recommended, namely, getting parents' names and phone numbers directly from students. Students who are interviewed can be asked if they are willing to have their parents called. The fact that the calls are not for checking up on the students will be stressed, as will students' right to decline. Students who are willing will give their home telephone numbers and advice on the best times to call. Any possible biases in the data from the ensuing interviews can be checked against a small sample of interviews with randomly selected parents.

ARTICULATION AND DISSEMINATION

The Institute operates in a research and development mode characterized by overlapping project staff and a high level of interaction across projects. This mode of operation has resulted in articulation of the AVEA project with other Institute projects, especially the federally funded Basic Skill Development Through Vocational Education project and the state funded projects dealing with ISSOE (Instructional Support System for Occupational Education). Specific examples of articulation with ISSOE-related projects are the following:

- attendance of project staff at an ISSOE planning meeting at Cornell on January 29, 1980;
- attendance of project staff at CIOE/ISSOE staff meetings, and vice versa;
- participation of project staff in proposal writing and review for specific ISSOE-related research;
- site visiting for collection of AVEA project data by Dr. Robert Frank, Coordinator of ISSOE Projects at CIOE;
- participation in proposals for research in areas of mutual concern, e.g., recruitment and retention of students;
- regular submission of project reports to Mr. Peter Cooke and Dr. Florence Sutler;
- use of the ISSOE network to set up workshops to further project work, e.g., cooperation with Mr. Joseph Valletta to schedule a workshop in Cortland on August 13, 1980.

In addition, other cross-project articulation has occurred with the sex equity projects at the Institute. Discussions have occurred in areas of mutual concern, such as the scoring of mothers' occupations and the mutual implications of AVEA research and the sex-role stereotyping projects.

The Institute has increasingly tried to redefine ongoing research areas so that not only will outcomes have immediate, practical utility, but research will deal with basic issues in occupational education. In this vein, discussions have occurred recently on how to identify these issues that recur across projects, and how to attack them cooperatively. The end result should be more effective and programmatic research with improved conceptual understanding, leading to applications in the field.

Since the AVEA research program developed through the sponsorship and support of both SED and the AVEA, all project activities, including dissemination, have been planned in consultation with these supporting organizations. For example, an integral part of Phase II has been the AVEA/CIOE Project Steering Committee Meetings. These meetings were held in December, 1979, and in April and September, 1980. At these meetings, committee members from AVEA were briefed on project activities, and their advice was solicited for future activities. In addition, periodic written reports to both SED and the Steering Committee have been a regular means for keeping them informed.

Initial contacts with Occupational Education Directors participating in the study were made prior to the February, 1980, Commissioner's Conference in Albany. A preliminary mailing to these Directors provided them with an overview of the Phase II research plan and illustrative instrument items. At the Conference those Directors who were able to attend were briefed further, and their feedback on the research plan and on instrument development was obtained.

Personnel at cooperating sites, with whom project staff worked during the data collection phase, were informed about the project both before and during the field visits. They will also receive a summary report of results for Phase II.

Other formal presentations of Phase II results are also being planned. *A more streamlined report on Phase II is being prepared for* AVEA officers and members, SED, and other interested persons. Newsletter articles on Phase II will be prepared for wider dissemination to the occupational education community, especially within New York State. The Institute newsletter, Career Commentary, which is published several times per year for dissemination to practitioners, will be the medium of dissemination. (Volume XIII of Career Commentary, published early in 1980, was devoted primarily to Phase I, although an article by Robert Frank discussed plans for Phase II.)

Other opportunities for dissemination have occurred as a result of the variety of workshops in which CIOE staff have participated during the past year. These workshops, while not devoted exclusively to the AVEA project, offer the opportunity to articulate activities, including dissemination, across projects. One such opportunity was a workshop on ISSOE Guidance and Planning, conducted in Ithaca on June 7, 1980. At this workshop, Clinton Walker made a presentation on the AVEA project for the benefit of some thirty occupational teachers, counselors, SED personnel and several other key ISSOE participants. Other workshop presentations will be made as the opportunities arise.

Staff has begun to draft an article for publication on the literature review of Phases I and II and to consider appropriate professional publications for such articles. In addition, staff has started to develop ideas for follow-up research on questions such as these: the effect of student drop-outs on differences between pre- and post-program measures; and the potential of attitude measures for use in employability profiles.

Another dissemination activity being planned is a presentation at the annual meeting of the NYSOEA (New York State Occupational Education Administrators) Conference in the fall of 1980. Contacts with the program chairperson have been made for this purpose. This presentation will provide an update on the presentation made at the NYSOEA Conference on 26 October, 1979. At this Conference, results of Phase I as well as preliminary plans for Phase II were presented.

Finally, pursuant to a standard operating procedure, 33 copies of this report will be given to BOER, along with one camera ready copy. To avoid duplication of mailing, CIOE will also provide a listing of addressees to whom the report has already been sent.

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APPENDICES

Appendix A. Survey of Students

Appendix B. Notes for AVEA Site Visitors

Appendix C. Guides for Interviewing Occupational Students

Appendix D. Guides for Interviewing Students in Home Schools

Appendix E. Guides for Interviewing Parents of Occupational Students

Appendix F. Guides for Interviewing Parents of Home School Students

Appendix G. Occupation Code Sheet

Appendix H. Scoring Models for the Self-report Question on One's Skills

Appendix I. Scoring Models for the Self-report Question on Skills One Lacks

Appendix J. Models for Scoring the Question on Sources of Job Information

Appendix K. Demographic Description of Survey Respondents

Appendix L. Factor Scores for Statistically Significant Demographic Variables: Data for All Respondents Combined

Appendix M. Factor Scores for Statistically Significant Demographic Variables: Data for Occupational Students Only

Appendix N. Factor Scores for Statistically Significant Demographic Variables: Data for Non-occupational Students Only

Appendix A

SURVEY OF STUDENTS

. . . . .

*A research group at Cornell University in Ithaca, New York,is conducting a statewide survey of student attitudes. You are part of a small group selected to take part. We hope you will be willing to help us in this project by filling out the following questionnaire. We are interested in how **you feel**; not in what you think others might say, or in what you think might be a "right" answer. We guarantee that all of your answers will be kept strictly confidential.*

. . . . .

Consent Form

Please read and, if you consent, sign your name:

I consent to take part in this survey of students attitudes. I have been informed that there are no risks and that I am under no obligation to participate. I am also aware that the information I provide will remain confidential.

Name

School

Date

Directions: A number of opinions are given below. For each one, circle the number that shows what you think.

	Strongly agree	Agree	Mildly agree	Mildly disagree	Disagree	Strongly disagree
1. My teachers at this school understand the problems of students pretty well.	1	2	3	4	5	6
2. With so much unemployment, I'll be lucky to get a decent job when I finish my education.	1	2	3	4	5	6
3. Students treat each other with respect at this school.	1	2	3	4	5	6
4. When someone criticizes me unfairly, I can handle it without getting mad.	1	2	3	4	5	6
5. I can work as well by myself as I can with others.	1	2	3	4	5	6
6. When my teachers here point out my mistakes, I usually agree.	1	2	3	4	5	6
7. While it may be important to help others, first you have to look out for yourself.	1	2	3	4	5	6
8. My overall high school program has been worthwhile.	1	2	3	4	5	6
9. At this school I got some ideas and information about the career or job I would like to have as an adult.	1	2	3	4	5	6
10. Most of the other students here have interests and problems similar to mine.	1	2	3	4	5	6
11. I enjoy going to this school.	1	2	3	4	5	6
12. When I disagree with someone, I usually keep it to myself.	1	2	3	4	5	6
13. I know how to present myself to a job interviewer.	1	2	3	4	5	6
14. When someone else doesn't like me, it bothers me a lot.	1	2	3	4	5	6
15. At the end of the school day I usually feel that I have done something worthwhile.	1	2	3	4	5	6
16. When my teachers here point out my mistakes, I try to improve.	1	2	3	4	5	6
17. I sometimes get into an argument without thinking how it will affect other people.	1	2	3	4	5	6
18. In my life I rarely get to do what I want to do.	1	2	3	4	5	6
19. At this school I have learned about how to find jobs that I might want.	1	2	3	4	5	6
20. People keep their promises most of the time.	1	2	3	4	5	6
21. My work here is evaluated fairly.	1	2	3	4	5	6
22. It's usually easy for me to have a conversation w[illegible]gers.	1	2	3	4	5	6
23. If another student at this school found something of mine, he/she would probably return it.	1	2	3	4	5	6
24. When someone gives me a raw deal I usually try to get even.	1	2	3	4	5	6
25. When you work with others, it is hard to get them to do their fair share.	1	2	3	4	5	6
26. I have a clear idea of what to expect from the kind of career I want.	1	2	3	4	5	6

	Strongly agree	Agree	Mildly agree	Mildly disagree	Disagree	Strongly disagree
27 When my teachers correct my work, I can learn a lot from it.	1	2	3	4	5	6
28. I am willing to work for something that others will enjoy, even if I won't be able to use it myself.	1	2	3	4	5	6
29. Most of my classes here are a waste of time.	1	2	3	4	5	6
30 I feel like a real part of what goes on at this school.	1	2	3	4	5	6
31. At this school I have gotten a better idea of the career opportunities that are open to me.	1	2	3	4	5	6
32. When I finish my education, I will be able to find the kind of job I want.	1	2	3	4	5	6
33. Most of my work here is related to what I want to do in my future.	1	2	3	4	5	6

Directions: The following six questions refer to your home school.

34. My work at my home school is evaluated fairly.	1	2	3	4	5	6
35. Many of my classes at my home school are a waste of time.	1	2	3	4	5	6
36. Students at my home school treat each other with respect.	1	2	3	4	5	6
37. The teachers at my home school understand the problems of students pretty well.	1	2	3	4	5	6
38. If another student at my home school found something of mine, he/she would probably return it.	1	2	3	4	5	6
39. I enjoy going to my home school.	1	2	3	4	5	6

Directions: In each one of the next three questions, check the one statement which you find to be **more** true.

40. ____ Most students here don't mind following the school's rules.

____ The rules at this school are too picky.

41. ____ Students are treated like mature people here.

____ Students are not respected here.

42. ____ Students here will help each other.

____ Students here are mostly out for themselves.

Directions: In each of the next three questions check the one choice that is most like you.

43. How nervous do you get when you have a big test: Check one.

____ so nervous that I do worse than I should.

____ nervous, but it doesn't affect me that much.

____ not nervous at all.

44. Your teacher moves around the room checking student's work. You suddenly realize you have made a big mistake somewhere in your work. You:

____ try to cover up your mistake.

____ hurry to find your mistake before the teacher gets there.

____ when the teacher gets to you, ask for help.

____ wouldn't be concerned.

45. When the teacher calls on me unexpectedly, I:

____ don't mind very much.

____ would rather not speak until I've had time to think.

____ wish I hadn't been called on.

Directions: Please respond to the next four questions as indicated.

46. How often do your teachers here put students down? **Circle** one.

Always	Almost Always	Often	Some-times	Almost never	Never
1	2	3	4	5	6

47. How much do teachers here care whether students learn? **Circle** one response.

Always	Almost Always	Often	Some-times	Almost never	Never
1	2	3	4	5	6

48. How much confidence do your teachers have in your abilities? **Circle** one response.

Very much	A lot	Fair amount	Some	Not much	Very little
1	2	3	4	5	6

Directions: Please fill in the following blanks as indicated.

49. What is a career you might be interested in going into: ____________________
____.

50. Try to list four skills or abilities you **HAVE** that would help you to qualify for the job.

____

____

____

____

51 Try to list four skills or abilities you **LACK** that you might need for getting the job.

____

____

____

____

1 Your Grade: ☐ 11th ☐ 12th ☐ Other ____________________
(write in)

2. Your Sex: ☐ Male ☐ Female

3. Your Date of Birth: ____________________
Month Year

4. How do you describe yourself (check one):
- ☐ Hispanic
- ☐ American Indian
- ☐ Black
- ☐ Asian or Pacific Islander
- ☐ White
- ☐ Other ____________ (specify)

5. Your plans for after high school graduation (Check the one most likely choice):
- ☐ Working full time
- ☐ Taking vo-tech courses at a trade or business school full or part time.
- ☐ Taking academic courses at a community or junior college full or part time.
- ☐ Taking technical or vocational courses at a community or junior college full or part time
- ☐ Military service
- ☐ Attending a four year college or university full or part time
- ☐ Other (____________________ (write in))

6. Your high school program (check the closest *one*)
- ☐ General high school
- ☐ Academic or college prep
- ☐ Vocational - business or office
- ☐ Vocational - trade or industrial
- ☐ Other ____________________ (describe)

7 Occupation of your father or male guardian: ____________________
- ☐ Does not apply

8. Occupation of your mother or female guardian: ____________________
- ☐ Does not apply

9. Your father's (or male guardian's) education (check the one that is closest to the highest level completed).
- ☐ 6th grade
- ☐ 8th grade
- ☐ High school
- ☐ Some college
- ☐ College degree
- ☐ Graduate or professional degree

10. Your mother's (or female guardian's) education (check the one that is closest to the highest level completed):
- ☐ 6th grade
- ☐ 8th grade
- ☐ High school
- ☐ Some college
- ☐ College degree
- ☐ Graduate or professional degree

11. Your current employment (check appropriate number of hours that you work per week):
- ☐ 0
- ☐ 1-5
- ☐ 6-10
- ☐ 11-15
- ☐ 16-20
- ☐ above 20

12. If you have a job now. what kind of work are you doing?
____
(write in)

Appendix B

Notes for AVEA Site Visitors

April/May 1980

- Show up at the sites early. There is occasionally some slippage of information between Ithaca and the sites, so they may be expecting you early. If you have a chance to call any of the sites before showing up to assure them that you will be there and to double check the time, that's helpful.

- Arrange for doing the interviews with your contact person on-site, and get names of parents to call from him/her. The word about interviews may not have reached the school, so you may have to ask for them as an add-on, unexpected feature. We want to get interview information from 5 students in the Oc Ed school and 5 in the home school(s) total per site, where a site is a two-day visit. At some sites, you may be going to two different BOCES.

- Put your name and date on the blackboard, if there is one.

- As students come in, encourage them to look over the survey, but ask them not to start until you have made some announcements. They need to look over the instrument in order to give informed consent.

- When you are ready to start, introduce yourself and explain the survey in general terms (i.e., not related to any of the hypotheses), e.g.:

  > We are ready to start now. I am _________________ from Cornell University. We are going to schools from upstate New York to Long Island asking students how they feel about school and about how they react to things in their lives.

- Confidentiality: Your responses on the survey will be kept confidential. That means that we will not tell anyone what you said on the survey, so that your identity is protected. When we store the surveys, your name will be removed to assure your anonymity. We do this for two reasons: we are required by law, and we do not want to embarrass or alienate any of the schools or students. We want to be welcome back in the schools, so we want to protect you and the schools. Although we plan to report the results to educators all over the country, your name and your school's name will not be revealed.

- When you answer the questions, would you please answer for how you feel and think not for how the principal, or your parents, or the person sitting next to you feels. The only right answer is how you really think or feel.

- Although you probably did not choose to be here at this particular time, now that you are here, you are not under any obligation to take part in the survey. Now that you have looked at the questions in the survey, if you have any reservations about filling it out, you are free and welcome not to. There are no penalties for not filling it out.

- Do you have any questions or comments?

- If you are willing to take part in this study, would you please sign the consent form on the inside of the cover. If you don't want to take part (either sit quietly, or return to class).

- I have a couple of small changes/corrections in the survey that I need to dictate to you:

  Demographics, #4: add Indian after American
  *BOCES Students: write in name of your speciality
  in Demo's #6 (e.g., welding, auto mech., ag mech., etc.)
  Strawberry form, #32: change now to new

  Strawberry form, #48:
  > change diswaser to dishwasher

  Peach form, #42:

- As you read the survey, some of the direction or questions may not be clear. Whenever you run into a problem, please raise your hand, and I will come around to clear it up.

- (for Vocational Students): When you answer the questions, would you please answer for this school, not for your home school. There is one set of questions about the home school, but they are plainly marked. Otherwise, answer for your experience here in this school.

- Remember, feel free to ask questions. O.K., begin.

Appendix C

Guide Sheet for Interviewing Occupational Students

1. How do you like going to this school
   - probe for clarification
   - probe for comparisons with home schools
2. What do you think about other students here?
   - probe for respect among students; tolerance, friendliness; trust of other students
   - probe for comparisons with home school
3. What do you think about your teachers here?
   - probe for quality of teaching; the friendliness of teachers; the nature of respect between student and teacher
   - probe for comparisons to home school teachers
4. How is your work evaluated here?
   How do you feel about this approach? Is it fair?
   What makes for a fair evaluation in your mind?
5. When you are not evaluated fairly how do you feel?
   What is it like to fail around here?
6. Do you ever get nervous in school?
   In what situations?
   What kinds of situations outside of school might make you nervous?
   What do you do about these?
7. What do you do for information to help when you think you need it?
   - probe for specific examples; ask about
   - ask if people ever come to them for information or help
8. What do you think is your greatest strength?
   - probe for meaning and examples in re self-confidence
   What things about yourself would you like to improve?
   - probe for meaning and examples
9. Suppose you want to find out more about a job in which you are interested. Can you describe what might be the best ways to find out more about what it would be like and what training it would require?

- probe as to sources of information/help that might be used
- probe as to how the students might seek employment of this sort

10. How do you feel about the following statement?

    While it may be important to help others, first you have to look out for yourself.

    Do you think people should be willing to sacrifice some of their free time to work for something others will enjoy but that they won't ever be able to use themselves.

    - probe as to why or why not

11. If you were to compare yourself now to what you were like two years ago what kinds of things would be different and what kinds of things would be the same?

    - probe how school in general has played a part in this development
    - probe how vocational education has played a part

Appendix D

Guides for Interviewing Students in Home Schools

1. How do you like going to this school?
   - probe for explanations
2. What do you think of other students here?
   - probe for respect among students; tolerance, friendliness, trust
3. What do you think about your teachers here?
   - probe for specific examples of quality of teaching; the friendliness of teachers; the nature of respect between student and teacher
4. How is your work evaluated here?
   How do you feel about this approach? Is it fair?
   What, to you, makes for a fair evaluation?
5. When you are not evaluated fairly how do you feel?
   What is it like to fail around here?
6. Do you get nervous in school?
   In what situations?
   How do you handle this?
   What kinds of situations outside of school might make you nervous?
   What do you do about these?
7. What do you do for information or help when you think you need it?
   - probe for specific examples; ask about whether they go to different sources for different problems
   - ask if people ever come to them for information or help
8. What do you think is your greatest strength?
   - probe for meaning and examples
   What things about yourself would you like to improve?
   - probe for meaning and examples
9. Suppose you want to find out more about a job in which you are interested. Can you describe what might be the best ways to find out more about what it would be like and what training it would require?

- probe as to sources of information/help that might be used
- probe as to how the students might seek employment of this sort

10. How do you feel about the following statement?

    While it may be important to help others, first you have to look out for yourself.

    Do you think people should be willing to sacrifice some of their free time to work for something others will enjoy but that they won't ever be able to use themselves?

    - probe why or why not

11. If you were to compare yourself now to what you were like two years ago what kinds of things would be different and what kinds of things would be the same?

    - probe how school in general has played a part in this

Appendix E

Guide For Interviewing Parents of Occupational Students

Hello, my name is ______________________. I'm a research assistant from Cornell University and I'm part of a group doing research on vocational education. ____(name)________at ____(school)______gave me your name as a parent of a student who has attended a BOCES program. If you don't mind, I'd like to ask you a few questions about your child's experience there.

1. What is your opinion of the BOCES? Do you think it is a good school/program? Can you give an example.
2. What do you think about the teaching there? What do you think of the quality of the teachers there?
3. Do you think your child's work has been graded fairly there?
4. How do you think the home school compares with the BOCES on some of these issues (teachers, evaluation, quality)?
5. How do you think attending the BOCES has affected your child? Do you think the program has been good for your child? Can you give an example?
6. How does your child like going to this program. What do you think he/she likes best about it?
7. What's the best think you feel your child has gotten from his/her experience in the program?

Appendix F

Guide for Interviewing Parents of Home School Students

Hello, my name is __________________________. I'm a research assistant from Cornell University, and I'm part of a group doing research on high school education in New York State. ____(name)__________at __(school)__ gave me your name as a parent of a student who attends that school. If you don't mind, I'd like to ask you a few questions about your child's experience there.

1. What is your opinion of the school? Do you think it is a good school/ program? Can you give an example?
2. What do you think about the teaching there? What do you think of the quality of the teachers there?
3. Do you think your child's work has been graded fairly there?
4. How do you think attending this school has affected your child? Do you think the program has been good for your child? Can you give an example?
5. How does your child like going to this school? What do you think she/ he likes best about it?
6. What's the best thing that you feel your child has gotten from her/his experience in the school?

100

Appendix G

Occupation Code Sheet (Modeled After NAEP)

This code sheet is to be used in scoring the following items:

FORM	ITEMS
BOCES-A (Green)	49, D7, D8, D12
LEA-A (Brown)	43, D7, D8, D12
BOCES-B (Red)	D7, D8, D12
LEA-B (Orange)	D7, D8, D12

("D" items are demographic items at the end of the forms)

01 - Arts and music: acting, singing, dancing, photography, commercial art illustration, etc.
02 - Professional: doctor, lawyer, dentist, teacher, pilot engineer, psychologist, architect, etc.
03 - Public service: law enforcement, parks, sanitation, social work, child care, etc.
04 - Private service: cook, cosmetology, hotel-restaurant, food services, TV, radio, airlines, travel agent, etc.
05 - Armed forces: Army, Navy, Marine Corps, Air Force, etc.
06 - Crafts: florist, tailor, baker, handicrafts, etc.
07 - Secretarial/clerical: bookkeeping, typing, receptionist, etc.
08 - Trades: plumbing, construction, lineman, electrician, carpenter, masonry, etc.
09 - Business, finance, and sales: accounting, finance, broker, sales clerk, etc.
10 - Health services: nurse, dietitian, electrolysist, etc.
11 - Technical: computer programmer, electrical technical, draftsman, etc.
12 - Manual mechanical: diecast, machinist, welding, auto services, etc.
13 - Agriculture: farming, ranch, dairy, winery, etc.
14 - Housewife
15 - Other occupation not classifiable above
00 - No usable response

Appendix H

Scoring Models For the Self-Report Question On One's Skills

QUESTION: Try to list four skills or abilities you HAVE that would help you to qualify for the job.

Item: Mustard form #44, cream form #50

A. One point for each instance, up to four total:

1. Art & Music: fine arts, photography
2. Health Service Skills: first aid
3. Clerical/office skills: typing, filing, shorthand, bookkeeping, office machines
4. Business, Finance & Sales: accounting, store clerk
5. Interpersonal Skills: works well with others, outgoing personality, deals well with authority, willingness to learn, creativity, understanding, decision-making, leadership
6. Personal skills: patience, self-confidence, hard working, organization
7. Physical Qualities: fit, good strength, appearance, dexterity
8. Intellectual Qualities: common sense, logical thinking, learns quickly
9. School or Academic Areas: verbal ability, scientific knowledge, math, languages
10. Specific Education and Experience: BOCES training, internships, volunteer programs
11. Technical Skills: computer knowledge
12. Manual & Mechanical: agricultural work, machine knowledge, welding, auto skills
13. Craft Skills: sewing, flower arranging, baking, handicrafts
14. Trade Skills: plumbing, carpentry, construction, masonry
15. Service Skills: restaurant work, child care

B. No credit for these responses:

1. No response
2. Unintelligible
3. Exact duplicates of previous responses
4. Contradition of response made to question about skills they LACK--score both as wrong
5. None
6. I don't know
7. Age (young or old)
8. Education or experience (general): degree, "the right education," "N years experience," "I am qualified"
9. Misinterpretation of question
10. Acceptable skills but unrelated to job specified in previous question

Appendix I

Scoring Models For The Self-Report Question On Skills One Lacks

Question: Try to list four skills or abilities you LACK that you might need for getting the job.

ITEM: Mustard form #45, cream form #51

A. One point for each instance, up to four total:

1. Art & Music Skills: fine arts, photography
2. Health Service Skills: first aid
3. Clerical/office Skills: typing, shorthand, office machines, bookkeeping
4. Business, Finance & Sales Skills: accounting, finance, store clerk
5. Interpersonal Skills: not forceful with others, inability to deal with public, dislike of crowds, impatience with others, communication difficulties
6. Personal Qualities: self-confidence, tension, temper, inability to take orders, inability to make decisions, lack of organization
7. Physical Qualities: handicaps, strength, poor eyesight-hearing
8. School or Academic Areas: spelling, vocabulary, verbal ability, scientific knowledge, math
9. Professional: student teaching, internship
10. Technical Skills: computer knowledge
11. Manual & Mechanical: machine knowledge, welding, auto skills, agricultural
12. Craft Skills: sewing, flower arranging, baking, handicrafts
13. Trade Skills: plumbing, carpentry, masonry, electrical knowledge
14. Service Skills: restaurant work, child care

B. No credit for these responses:

1. No response
2. Unintelligible
3. Exact duplicates of previous responses
4. Contradiction of response made to part asking for skills they HAVE--score both as wrong
5. None
6. I don't know
7. Age (young or old)
8. Education or experience (general): no diploma, too little education or experience
9. Acceptable skills but unrelated to job specified in previous question
10. Misinterpretation of question

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Appendix J

Models For Scoring The Question On Sources of Job Information

QUESTION: Suppose you want to find out more about a job you are interested in. Try to list five things you could do NOW to find out what it would be like and what training it might require.

ITEM: Strawberry form #49, peach form #43:

A. One point for each of these responses up to a total of five points:

1. See counselor, advisor, guidance officer
2. Talk to or observe people in the field: volunteer for a day, shadow program, go there and see for yourself, ask union member
3. Obtain and/or read material about it: encyclopedia, brochures, job manual, library, financial records of business, newspaper
4. Talk to school teacher
5. Write for information: from colleges, schools, professional associations, Better Business Bureau.
6. Contact personnel officer, employer, employment office, competing companies.
7. Ask parents
8. Watch films, T.V.

B. Unacceptable Responses

1. Unintelligible
2. Vague responses: finish high school, look around, ask another person, find out about______.
3. Get Job or Training: study it, go to trade school, go to college, take lessons, join BOCES
4. Unrelated items: pay scale, days off, benefits
5. Exact duplicate of a previous response
6. No response or I don't know
7. Misinterprets questions: a list of skills, information about specific jobs.

Appendix K

Demographic Description of Survey Respondents

1. Respondent's grade level

	Total group	Occupational	Non-occupational
Eleventh grade	1.8%	2.9%	0.6%
Twelfth grade	96.3	95.6	99.4
Other	1.1	1.6	0.6
Total %	100.0	100.0	100.0
Base N for percentages	727	383	344
Missing N	6	2	4
Total N	733	385	348

2. Respondent's sex

	Total group	Occupational	Non-occupational
Male	55.2%	58.9%	51.0%
Female	44.8	41.1	49.0
Total %	100.0	100.0	100.0
Base N for percentages	727	382	345
Missing N	6	3	3
Total N	733	385	348

3. Racial/ethnic identity

	Total group	Occupational	Non-occupational
Hispanic	1.6%	1.7%	1.5%
American Indian	3.3	4.5	2.1
Black	7.8	10.4	4.1
Asian or Pacific Islander	0.7	0.5	0.9
White	85.6	74.5	90.0
Other	1.0	1.3	0.6
Total %	100.0	100.0	100.0
Base N for percentages	696	356	340
Missing N	37	29	8
Total N	733	385	348

(Continued on next page)

Appendix K (continued)

4. Post-high school plans

	Total group	Occupational	Non-occupational
Working full time	29.1%	46.6%	9.4%
Taking vo-tech courses at a trade or business school full or part time	5.1	6.3	3.6
Taking academic courses at a community or junior college full or part time	13.1	9.7	16.9
Taking technical or vocational courses at a community or junior college full or part time	9.3	11.9	6.3
Military service	6.6	9.2	3.6
Attending a four year college or university full or part time	32.1	11.3	55.3
Other	4.8	4.9	4.8
Total %	100.0	100.0	100.0
Base N for percentages	702	371	331
Missing N	31	14	17
Total N	733	385	348

5. Student's high school program

	Total group	Occupational	Non-occupational
General high school	27.6%	24.3%	31.1%
Academic or college prep	30.2	5.6	55.7
Vocational - business or office	6.9	7.9	5.9
Vocational - trade or industrial	17.7	30.8	4.1
Other	17.6	31.4	3.2
Total %	100.0	100.0	100.0
Base N for percentages	695	354	341
Missing N	38	31	7
Total N	733	385	348

(Note: At most occupational education sites, students were also asked to write the name of the specific program they were enrolled in. This information was used to produce the following breakdown.)

Occupational program area	Frequencies
Agricultural education	4.8%
Distributive education	2.2
Health services education	8.6
Occupational home economics	3.7
Business and office education	13.8
Technical education	0.7
Trades and industrial education	66.2
Total %	100.0
Base N for percentages	269
Missing N	116
Total N	385

(Continued on next page)

Appendix K (continued)

6. Father's occupation

	Total group	Occupational Students	Non-occupational Students
Arts and music	1.3%	0.4%	2.2%
Professional	11.8	3.4	19.6
Public service	8.8	11.5	6.2
Private service	5.0	4.2	5.8
Armed Forces	0.2	0.4	0.0
Crafts	0.9	0.8	1.1
Secretarial-clerical	0.2	0.0	0.4
Trades	17.4	23.4	11.6
Business, finance and sales	11.8	7.7	15.6
Health services	0.4	0.0	0.7
Technical	3.5	3.4	3.6
Manual mechanical	13.8	21.8	6.2
Agriculture	2.8	2.7	2.9
Housewife	0.0	0.0	0.0
Other	22.2	20.3	24.0
Total %	100.0	100.0	100.0
Base N for percentages	536	261	275
Missing N	197	124	73
Total N	733	385	348

Duncan socio-economic status (SES) rating
(based on father's occupation)

	Total group	Occupational Students	Non-occupational Students
1 (low SES)	10.4%	16.7%	4.3%
2	21.4	26.9	16.2
3	9.7	11.5	8.1
4	13.4	14.1	12.8
5	11.7	14.5	8.9
6	15.8	11.0	20.4
7	6.3	2.6	9.8
8	5.6	1.3	9.8
9	4.8	1.3	8.1
10 (high SES)	0.9	0.0	1.7
Total %	100.0	100.0	100.0
Base N for percentages	462	227	235
Missing N	271	158	113
Total N	733	385	348

(Continued on next page)

Appendix K (continued)

7. Mother's occupation

	Total group	Occupational Students	Non-occupational Students
Arts and music	1.2%	0.0%	2.4%
Professional	7.3	1.3	13.0
Public service	6.0	7.6	4.5
Private service	8.7	10.2	7.3
Armed forces	0.0	0.0	0.0
Crafts	1.5	1.7	1.2
Secretarial-clerical	15.1	[illegible]3.1	17.1
Trades	0.8	0.[illegible]	1.2
Business, finance and sales	7.1	7.6	6.5
Health services	9.3	13.1	5.7
Technical	1.7	1.7	1.6
Manual mechanical	4.8	6.8	2.8
Agriculture	0.2	0.4	0.0
Housewife	27.4	28.8	26.0
Other	8.9	7.2	10.6
Total %	100.0	100.0	100.0
Base N for percentages	482	236	246
Missing N	251	149	102
Total N	733	385	348

8. Father's highest level of education

	Total group	Occupational Students	Non-occupational Students
Sixth grade	2.6%	3.7%	1.5%
Eighth grade	8.3	10.8	5.7
High school	51.6	61.6	41.0
Some college	14.0	10.8	17.5
College degree	11.3	8.5	14.2
Graduate or professional degree	12.1	4.5	20.2
Total %	100.0	100.0	100.0
Base N for percentages	684	352	332
Missing N	49	33	16
Total N	733	385	348

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9. Mother's highest level of education

	Total group	Occupational Students	Non-occupational Students
Sixth grade	1.4%	1.4%	1.5%
Eighth grade	3.8	6.0	1.5
High School	63.8	70.4	56.6
Some college	11.0	11.4	10.5
College degree	12.3	6.5	18.6
Graduate or professional degree	7.7	4.3	11.4
Total %	100.0	100.0	100.0
Base N for percentages	702	368	334
Missing N	31	17	14
Total N	733	385	348

10. Student's current employment

a. Number of hours student works each week

	Total group	Occupational Students	Non-occupational Students
None	27.8%	23.9%	32.1%
1 to 5 hours	5.9	5.9	5.9
6 to 10 hours	9.1	9.7	8.5
11 to 15 hours	10.5	10.2	10.9
16 to 20 hours	19.7	20.2	19.1
Over 20 hours	27.0	30.1	23.5
Base N for percentage	712	372	340
Missing N	21	13	8
Total N	733	385	348

b. Student's job category

	Total group	Occupational Students	Non-occupational Students
Arts and music	1.5%	1.2%	1.9%
Professional	0.0	0.0	0.0
Public service	1.9	2.3	1.4
Private service	35.5	33.9	37.6
Armed forces	0.0	0.0	0.0
Crafts	1.1	1.6	0.5
Secretarial-clerical	6.0	2.7	10.0
Trades	2.4	2.7	1.9
Business, finance and sales	9.0	10.0	7.1
Health services	3.6	4.7	2.4
Technical	1.7	1.6	1.9
Manual mechanical	7.7	10.9	3.8
Agriculture	6.9	7.4	6.2
Housewife	0.2	0.4	0.0
Other	22.5	20.2	25.2
Total %	100.0	100.0	100.0
Base N for percentages	467	257	210
Missing N	266	128	138
Total N	733	385	348

Appendix L

Factor Scores For Statistically Significant Demographic Variables: Data For All Respondents Combined

Factor 1: Attitude toward school: program

Groups and subgroups	Mean	Standard deviation	Number
Total	100.01	8.25	733
Program			
Occupational	102.27	6.89	385
Non-Occupational	97.52	8.89	348
Post-high school plans			
Working full-time	101.75	7.43	204
Vo-tech courses, trade or business school	99.64	9.67	36
Academic courses, junior-community college	97.91	8.47	92
Vo-tech courses, junior-community college	99.89	7.67	65
Military service	100.54	6.69	46
Four year college	99.54	8.62	225
Other	98.52	9.47	34
Mother's education			
Sixth grade	97.45	10.31	10
Eighth grade	102.22	7.79	27
High school	100.57	7.87	448
Some college	98.76	8.65	77
College degree	99.26	8.55	86
Graduate or professional degree	97.55	9.14	54

Factor 2: Attitude toward school: teachers/evaluation

Groups and subgroups	Mean	Standard deviation	Number
Total	99.89	7.72	733
Program			
Occupational	100.94	7.33	385
Non-occupational	98.73	7.59	348
Duncan SES rating (from father's occupation)			
1 (low SES)	102.74	6.16	48
2	99.76	9.14	99
3	100.84	6.68	45
4	101.82	6.84	62
5	101.76	6.12	54
6	98.18	7.84	73
7	97.77	8.52	29
8	98.11	7.46	26
9	98.76	7.65	22
10 (high SES)	101.65	5.26	4

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Appendix L (continued)

Factor 3: Attitude toward school: students/trust

Groups and subgroups	Mean	Standard deviation	Number
Total	100.02	7.59	733
Program			
Occupational	101.17	7.88	385
Non-Occupational	98.74	7.27	348
Post-high school plans			
Working full-time	100.85	7.52	204
Vo-tech courses, trade or business school	100.59	8.15	36
Academic courses, junior-community college	99.61	7.49	92
Vo-tech courses, junior-community college	101.24	7.23	65
Military service	101.97	7.14	46
Four year college	98.84	7.84	225
Other	99.98	7.08	34
Father's education			
Sixth grade	99.22	9.94	18
Eighth grade	102.44	6.49	57
High school	100.33	7.72	353
Some college	98.91	8.09	96
College degree	100.98	6.89	77
Graduate or professional degree	98.31	7.38	83

Factor 4: Confidence: career skills

Groups and subgroups	Mean	Standard deviation	Number
Total	99.95	6.63	733
Program			
Occupational	103.50	5.74	385
Non-Occupational	96.02	7.50	348
Racial-ethnic group			
Hispanic	99.01	10.22	11
American Indian	102.15	6.54	23
Black	102.64	6.93	54
Asian or Pacific Islander	100.21	10.96	5
White	99.42	7.64	596
Other	101.58	8.37	7
Post-high school plans			
Working full-time	102.65	6.10	204
Vo-tech courses, trade or business school	101.70	5.33	36
Academic courses, junior-community college	98.78	7.25	92
Vo-tech courses, junior-community college	102.46	7.10	65
Military service	102.33	8.41	46
Four year college	96.48	7.67	225
Other	99.45	9.05	34

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Appendix L (continued)

Factor 4: Confidence: career skills (cont'd.)

Groups and subgroups	Mean	Standard deviation	Number
Duncan SES rating (from father's occupation)			
1 (low SES)	102.67	5.51	48
2	101.48	7.08	99
3	101.82	7.68	45
4	99.16	7.93	62
5	98.65	8.31	54
6	97.68	7.35	73
7	96.57	7.78	29
8	96.98	7.24	26
9	96.48	8.01	22
10 (high SES)	91.02	7.01	4
Father's education			
Sixth grade	102.29	5.40	18
Eighth grade	100.99	6.90	57
High school	100.61	7.27	353
Some college	98.32	7.83	96
College degree	98.23	8.75	77
Graduate or professional degree	97.53	7.84	83
Mother's education			
Sixth grade	98.00	6.22	10
Eighth grade	101.72	5.01	27
High school	100.72	7.48	448
Some college	100.08	8.15	77
College degree	96.71	7.42	86
Graduate or professional degree	97.65	7.43	54
Father's occupation			
Arts and music	92.84	9.28	7
Professional	96.31	7.50	63
Public service	100.55	7.74	47
Private service	101.54	7.42	27
Armed forces	105.94	0.00	1
Crafts	99.11	9.29	5
Secretary-clerk	97.91	0.00	1
Trades	101.17	7.39	93
Business and sales	97.18	8.41	63
Health services	94.21	3.72	2
Technical	98.38	7.10	19
Manual mechanical	102.67	6.17	74
Agriculture	100.07	5.43	15
Other	99.25	7.13	119

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Appendix L (continued)

Factor 5: Confidence: locus of control

Groups and subgroups	Mean	Standard deviation	Number
Total	100.06	7.41	733
Program			
Occupational	99.37	7.53	385
Non-occupational	100.60	7.28	348
Racial-ethnic group			
Hispanic	100.52	8.96	11
American Indian	100.43	5.85	23
Black	97.31	8.03	54
Asian or Pacific Islander	101.68	7.52	5
White	100.44	7.30	596
Other	96.66	8.93	7
Post-high school plans			
Working full-time	99.05	7.29	204
Vo-tech courses, trade or business school	99.65	6.69	36
Academic courses, junior-community college	99.15	7.87	92
Vo-tech courses, junior-community college	99.79	7.49	65
Military service	100.53	7.05	46
Four year college	101.04	7.10	225
Other	102.60	7.63	34
Father's education			
Sixth grade	99.24	9.46	18
Eighth grade	98.98	7.20	57
High School	99.55	7.23	353
Some college	101.59	6.60	96
College degree	100.69	7.10	77
Graduate or professional degree	101.84	8.08	83
Mother's education			
Sixth grade	95.07	10.17	10
Eighth grade	96.77	7.49	27
High school	100.37	7.26	448
Some college	99.90	7.47	77
College degree	100.33	6.90	86
Graduate or professional degree	101.22	7.68	54

Factor 6: Handling stress

Groups and subgroups	Mean	Standard deviation	Number
Total	100.00	7.42	733
Program			
Occupational	99.92	7.05	385
Non-Occupational	100.09	7.81	348
Sex			
Males	99.18	7.23	401
Females	100.96	7.50	326
Racial-ethnic group			
Hispanic	99.50	7.32	11
American Indian	99.01	7.84	23
Black	103.22	7.41	54
Asian or Pacific Islander	97.78	3.88	5
White	99.78	7.38	596
Other	98.11	9.39	7

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Appendix L (continued)

Factor 7: Social confidence

Groups and subgroups	Mean	Standard deviation	Number
Total	99.98	7.31	733
Program			
Occupational	99.27	7.62	385
Non-Occupational	100.76	7.38	348
Sex			
Males	99.41	7.51	401
Females	100.68	7.52	326
Post-high school plans			
Working full-time	99.13	7.60	204
Vo-tech courses, trade or business school	98.36	5.71	36
Academic courses, junior-community college	100.62	7.87	92
Vo-tech courses, junior-community college	98.29	7.77	65
Military service	99.70	7.82	46
Four year college	101.11	7.41	225
Other	98.79	7.70	34
Number of hours students works each week			
None	98.74	8.10	198
1 to 5 hours	98.66	7.51	42
6 to 10 hours	98.30	8.24	65
11 to 15 hours	99.68	6.08	75
16 to 20 hours	101.75	7.17	140
Over 20 hours	100.87	7.34	192
Duncan SES rating (from father's occupation)			
1 (low SES)	101.28	6.06	48
2	98.17	7.54	99
3	101.34	7.59	45
4	100.38	7.10	62
5	102.11	6.72	54
6	98.92	7.53	73
7	99.36	8.40	29
8	100.47	9.07	26
9	101.62	8.55	22
10 (high SES)	103.87	1.78	4
Father's education			
Sixth grade	99.64	7.56	18
Eighth grade	99.83	8.21	57
High school	99.71	7.45	353
Some college	100.21	7.29	96
College degree	97.50	7.10	77
Graduate or professional degree	102.43	7.16	83
Mother's education			
Sixth grade	103.04	8.06	10
Eighth grade	98.74	7.83	27
High school	99.58	7.44	448
Some college	100.42	7.71	77
College degree	99.56	7.43	86
Graduate or professional degree	103.26	6.97	54

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Appendix L (continued)

Factor 8: Social responsibility

Groups and subgroups	Mean	Standard deviation	Number
Total	100.10	6.94	733
Program			
Occupational	99.05	6.51	385
Non-Occupational	101.26	7.39	348
Sex			
Males	99.10	6.94	401
Females	101.35	6.98	326
Post-high school plans			
Working full-time	98.65	7.19	204
Vo-tech courses, trade or business school	101.05	6.33	36
Academic courses, junior-community college	100.46	6.62	92
Vo-tech courses, junior-community college	99.27	5.64	65
Military service	100.02	6.49	46
Four year college	101.24	7.48	225
Other	100.09	7.29	34
Father's education			
Sixth grade	100.77	6.27	18
Eighth grade	101.15	6.98	57
High school	99.16	7.01	353
Some college	101.12	6.96	96
College degree	101.19	6.34	77
Graduate or professional degree	101.65	7.32	83
Father's occupation			
Art and music	98.32	10.74	7
Professional	102.39	6.77	63
Public service	97.91	6.22	47
Private service	99.26	7.20	27
Armed forces	96.27	0.00	1
Crafts	99.21	7.80	3
Secretary-clerk	107.69	0.00	1
Trades	100.07	7.67	93
Business and sales	100.81	7.95	63
Health services	107.63	7.17	2
Technical	104.78	8.06	19
Manual mechanical	99.21	5.70	74
Agriculture	101.78	7.19	15
Other	101.05	6.75	119

Appendix M

Factor Scores For Statistically Significant Demographic Variables: Data For Occupational Students Only

Factor 1: Attitude toward school: program

	Mean	Standard deviation	Number
Total	102.27	6.89	385

[No demographic variables were significantly related to scores on this factor.]

Factor 2: Attitude toward school: teachers/evaluation

	Mean	Standard deviation	Number
Total	100.94	7.83	385

[No demographic variables were significantly related to scores on this factor.]

Factor 3: Attitude toward school: students/trust

	Mean	Standard deviation	Number
Total	101.18	7.88	385

[No demographic variables were significantly related to scores on this factor.]

Factor 4: Confidence: career skills

	Mean	Standard deviation	Number
Total	103.50	5.74	385

[No demographic variables were significantly related to scores on this factor.]

Factor 5: Confidence: locus of control

Groups and subgroups	Mean	Standard deviation	Number
Total	99.57	7.53	385
Mother's education			
Sixth grade	94.70	14.78	5
Eighth grade	95.57	6.46	22
High school	100.34	7.13	259
Some college	99.72	7.68	42
College degree	98.17	8.03	24
Graduate or professional degree	99.99	7.11	16

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Appendix M (continued)

Factor 6: Handling stress

Groups and subgroups	Mean	Standard deviation	Number
Total	99.92	7.04	385
Sex			
Males	98.98	6.72	225
Females	101.20	7.34	157

Factor 7: Social confidence

Groups and subgroups	Mean	Standard deviation	Number
Total	99.27	7.62	385
Racial-ethnic group			
Hispanic	89.51	7.68	6
American Indian	98.77	6.49	16
Black	102.18	8.97	40
Asian or Pacific Islander	103.16	6.03	2
White	99.29	7.50	287
Other	98.42	6.09	5
Number of hours students works each week			
None	97.60	9.09	89
1 to 5 hours	100.10	6.67	22
6 to 10 hours	97.18	9.47	36
11 to 15 hours	99.30	6.47	38
16 to 20 hours	100.80	6.83	75
Over 20 hours	100.02	6.56	112
Duncan SES rating (from father's occupation)			
1 (low SES)	100.02	5.94	38
2	97.30	7.94	61
3	102.94	8.23	26
4	99.99	7.66	32
5	101.84	6.78	33
6	97.21	6.03	25
7	95.31	7.89	6
8	103.30	12.78	3
9	96.64	8.17	3
10 (high SES)	---	---	0

Factor 8: Social responsibility

Groups and subgroups	Mean	Standard deviation	Number
Total	99.05	6.51	385
Sex			
Males	98.49	6.62	225
Females	99.86	6.34	157

Appendix N

Factor Scores For Statistically Significant Demographic Variables: Data For Non-occupational Students Only

Factor 1: Attitude toward school: program

Groups and subgroups	Mean	Standard deviation	Number
Total	97.52	8.89	348
Post-high school plans			
Working full-time	96.56	8.44	31
Vo-tech courses, trade or business school	93.19	11.61	12
Academic courses, junior-community college	95.49	8.44	56
Vo-tech courses, junior-community college	95.13	7.64	21
Military service	97.03	5.05	12
Four year college	99.20	8.81	183
Other	94.44	9.82	16

Factor 2: Attitude toward school: teachers/evaluation

Groups and subgroups	Mean	Standard deviation	Number
Total	98.73	7.59	348
Sex			
Males	97.69	8.18	176
Females	99.74	6.78	169
Racial-ethnic group			
Hispanic	98.77	6.13	5
American Indian	97.08	6.30	7
Black	102.79	6.74	14
Asian or Pacific Islander	102.86	3.97	3
White	98.58	7.56	309
Other	81.64	11.86	2

Factor 3: Attitude toward school: students/trust

Groups and subgroups	Mean	Standard deviation	Number
Total	98.74	7.26	348
Sex			
Males	99.77	7.27	176
Females	97.78	7.00	169
Father's education			
Sixth grade	92.93	7.51	5
Eighth grade	100.11	5.84	19
High school	99.10	7.16	136
Some college	97.49	7.77	58
College degree	101.23	5.87	47
Graduate or professional degree	98.11	7.60	67

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Appendix N (continued)

Factor 4: Confidence: career skills

Groups and subgroups	Mean	Standard deviation	Number
Total	96.02	7.50	348
Post-high school plans			
Working full-time	99.43	9.58	31
Vo-tech courses, trade or business school	99.50	4.78	12
Academic courses, junior-community college	96.03	7.38	56
Vo-tech courses, junior-community college	97.28	7.21	21
Military service	95.63	9.03	12
Four year college	94.77	6.81	183
Other	97.11	9.14	16
Duncan SES rating (from father's occupation)			
1 (low SES)	95.16	3.76	10
2	98.70	5.38	38
3	98.90	8.49	19
4	96.54	8.69	30
5	91.69	7.53	21
6	94.88	7.09	48
7	95.48	7.97	23
8	95.91	6.98	23
9	94.84	6.99	19
10 (high SES)	91.02	7.01	4

Factor 5: Confidence: locus of control

Groups and subgroups	Mean	Standard deviation	Number
Total	100.60	7.28	348
Father's education			
Sixth grade	103.65	7.31	5
Eighth grade	98.51	7.34	19
High school	99.09	7.16	136
Some college	102.07	7.23	58
College degree	100.90	7.14	47
Graduate or professional degree	102.66	7.43	67

Factor 6: Handling stress

Groups and subgroups	Mean	Standard deviation	Number
Total	100.09	7.81	348

[No demographic variables were significantly related to scores on this factor.]

(Continued on next page)

Appendix N (continued)

Factor 7: Social confidence

Groups and subgroups	Mean	Standard deviation	Number
Total	100.76	7.38	348
Sex			
Males	99.56	7.34	176
Females	101.95	7.27	169
Number of hours student works each week			
None	99.67	7.09	109
1 to 5 hours	97.08	8.22	20
6 to 10 hours	99.68	6.27	29
11 to 15 hours	100.08	5.72	37
16 to 20 hours	102.85	7.45	65
Over 20 hours	102.06	8.21	80
Father's education			
Sixth grade	102.54	8.52	5
Eighth grade	103.38	6.97	19
High school	100.13	7.31	136
Some college	101.35	6.44	58
College degree	97.17	7.29	47
Graduate or professional degree	102.91	7.32	67
Mother's education			
Sixth grade	106.50	9.17	5
Eighth grade	99.63	6.44	5
High school	100.57	7.24	189
Some college	101.13	7.42	35
College degree	99.07	7.44	62
Graduate or professional degree	103.31	6.92	38

Factor 8: Social responsibility

Groups and subgroups	Mean	Standard deviation	Number
Total	101.26	7.39	348
Sex			
Males	99.87	7.27	176
Females	102.75	7.27	169